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THE

CORN AND CATTLE PRODUCING

DISTRICTS OF FRANCE.

83674

BY

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ILLUSTRATED WITH ENGRAVINGS ON WOOD, AND A MAP OF THE FRENCH PROVINCES.

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To

MONS. LEONCE DE LAVERGNE,

WHOSE WRITINGS HAVE DONE SO MUCH TO

MAKE KNOWN TO HIS COUNTRYMEN THE AGRICULTURE OF ENGLAND,

AND HAVE INFLUENCED SO GREATLY

THE ADVANCEMENT OF AGRICULTURE IN FRANCE,

THIS ATTEMPT TO PLACE BEFORE ENGLISHMEN THE PRESENT POSITION

OF CORN AND CATTLE FARMING IN FRANCE IS

Dedicated,

WITH GREAT RESPECT AND AFFECTION,

BY

THE AUTHOR.

71, Boulevard de la Reine, Versailles,

October 25th, 1877.

To Mons. Geo. Gibson Richardson.

SIR,

I have read the proof sheets of your book on Farming in France, and with a complete knowledge of its contents (en pleine connaissance de cause), I accept heartily (avec empressement) the dedication of it that you offer to me.

As the state of my health no longer allows me to work, I watch with the warmest sympathy the labours of those who are willing to take my place.

You have already rendered important services to French agriculture, and we shall be deeply grateful for this fresh encouragement.

Pray receive, with my thanks, the assurance of my affectionate consideration.

LEONCE DE LAVERGNE.

PREFACE.

THIS work upon the corn and cattle districts of France is not written with a personal knowledge of all the information offered; such knowledge, indeed, it would not be possible for one person to attain; it is really a compilation from the best authorities, the writer having just so much acquaintance with the country as to seem to justify the attempt he is making to put before the English public fuller information on the state of farming in France than is at present accessible to it, and having also the advantage of knowing most of the leading writers on Agriculture in France.

The supply of authentic information is abundant, from the full statistics published by the Government, to the weekly, monthly, and yearly reports of the numerous agricultural societies through the country.

The most important society is the Société Centrale, consisting of fifty-two members chosen from the leading men of science who have applied their knowledge to agriculture, and of those who have adapted this scientific knowledge practically. Another society, that of the Agriculteurs de France, resembles more our Royal Agricultural, and has 3,000 members. Every department has its own society; most, if not all, have smaller ones

for each district; they all meet, discuss, and publish; they did so a hundred years ago, and probably are still open to the criticism passed upon them by Arthur Young: "They meet, they talk, they offer prizes, they publish nonsense, but as the people cannot read, no great harm is done; people can see, however, and if a farm were cultivated in a manner worthy of imitation they might learn." Things have certainly improved since Young's time; less nonsense is published, perhaps because more people can read and criticise; model farms exist in every district, and in the end empirical is largely replaced by reasonable practice.

In addition to the publications of these numerous societies there are plenty of farming papers; the two most important are published weekly; one, the "Journal de l'Agriculture," is edited by M. Barral, permanent secretary of the Société Centrale, who has established a high reputation in the application of science to manufactures and agriculture; the other, the "Journal de l'Agriculture Pratique," is edited by M. Lecouteux, secretary of the Société des Agriculteurs. Articles are written for these papers by the most competent men in France, and as they are signed, readers always know whose statements and opinions are offered for their consideration.

Besides these papers by individuals there are reports on stock and farming drawn up by committees, and discussed and adopted by the societies; some single farms have, indeed, large volumes devoted to them; separate manuals are published on the best methods of

rearing the different kinds of stock, and of growing the various sorts of produce, the writers selected being those who know most about the subject; some large publishing houses in Paris find their chief business in the sale of works on farming. There is, indeed, no lack of materials for a good and instructive work on French farming; the difficulty is to use them judiciously, the temptation very strong to use them too copiously. The writer, or compiler, has done his best; he is conscious that he has tried to select from these authorities that which seemed to be most interesting to Englishmen, and to select it fairly; his great fear is that his work may stand in the way of a similar work being undertaken by some one more able to do it justice; he hopes it may have a contrary effect, and that it may stimulate a desire to know more about farming in France, and that a more capable hand may come forward and satisfy the desire which this work may only excite.

Reports of committees, articles by competent writers, must be relied upon as giving trustworthy information; Government statistics are not to be accepted so unreservedly; at least, they are much criticised. Of the elaborate report of 1862, M. Barral says: "It is more full of errors than any statistics that ever were published, as has been shown by those who take an interest in the subject, so that it is seldom referred to, and it is considered a disgrace to French publications. M. Leonce de Lavergne said this long before we did." Since 1862, the returns may have been partially incorrect, but not intentionally false. A report adopted by the Société

Centrale in April, 1877, says, among other things relating to this question: "Do the agricultural statistics offer that guarantee of truth and sincerity necessary to give them the value they ought to have? Clearly not. We all know how the returns are got up; the Mayors of the 40,000 communes receive the papers to be filled up; the Mayor consults two or three neighbours, and they estimate in a chance sort of way the number of acres in cultivation; the answers to the other questions are purely guesswork." A more perfect system is proposed, but in the meantime the statistics so prepared are all we have to look to; that they are imperfect must be clear to all who have had occasion to study them; it cannot be supposed that in the Bouches du Rhône there should have been 2,686 head of cattle in 1872, and 11,463 in 1873; or that the numbers in Garonne should have doubled between one year and another; or that the sheep in Dordogne should increase from 453,241 in 1872 to 761,851 in 1873. In spite of these discrepancies, which are evidently errors, that can be corrected by reference to previous reports, the returns have an absolute value; and though Finisterre may not have precisely 404,140 head of horned stock, nor Vaucluse exactly 1,723, we may take it as certain that Finisterre has the largest number of cattle of any department, and Vaucluse the smallest, and that the proportions are pretty much what the returns indicate.

The report adopted by the Société Centrale, urging that a more exact census should be taken, seems to

throw too much discredit upon the present returns; it is true they are only estimates, but they are made by competent judges. The Mayor must know every field and every farmer in his commune, and the two or three neighbours he would consult would certainly be those whose opinion is worth having; and, though liable to error, and not based on precise information, they can be fairly depended upon as far as they go; if they show an increase or a decrease in the growth of any corn, or in the existence of any kind of stock, it may be accepted as true that some such increase or decrease has taken place; so far they may be trusted, but no farther. No French writer would say of them what Mr. Giffen says of the English returns for 1876: "That there is no doubt that the total acreage of all the various crops in the country, and the total numbers of the various kinds of live stock, are what they are stated to be in these tables; the percentage of wrong returns, or of wrong estimates in the absence of returns, being quite insignificant;" but they might concede that they were "substantially accurate on most essential points."

There is no work on French farming in English, except the celebrated one of Arthur Young, and that is wholly out of date. Written at the end of last century, it contains the best—indeed, the only—account of French agriculture of the period, and it is of far more interest to Frenchmen than to Englishmen; it is continually referred to. It was translated into French in 1860, with an introduction by M. de Lavergne, who says of the work: "We do not possess in our language

any document so complete of the state of our country in 1789."

In French, the best work is that of M. Leonce de Lavergne, "The Rural Economy of France," which, in the limits of a small volume of 500 pages, gives a perfect description of every part of his country, and not only of its agriculture, but of its wealth and physical appearance, with something also of its history. More than a fourth of it is taken up with an account of the condition of the country before, during, and since the great Revolution—the distribution of property, the incidence of taxation, and the advance of internal communication. Any reader of that book, having some acquaintance with the country, would obtain a very complete knowledge of France. Then why not simply translate the work without taking the trouble to compile a new one? For the simple reason that it is untranslatable. There are little touches, a line, a suggestion, which are pictures in themselves to a Frenchman, but which would have no meaning for a stranger. It is a literary gem after the manner of a picture by Meissonier, and besides, it was written between 1853 and 1860, the last edition being in 1865; and it would be a poor compliment to M. de Lavergne and such men, to suppose that a description of French farming at those dates would be a true representation of what it is now.

M. de Lavergne's work suggested the present one; there was a fascination in reading and re-reading it, which excited the desire to impart to others the

knowledge it contained. The form had to be different, details had to be obtained which would interest English readers, and would have to be fully explained, but which, in a work for French readers, were not necessary; and very much of French farming, such as wine-growing, silk-worm-rearing, oil-making, &c., would have no attraction for us. This work is therefore limited in its farming part to a description of the cultivation of corn and the rearing of cattle, the staple of our own farming business; and, if properly described, the comparison of the French and English systems should be interesting, and may be useful.

An endeavour has also been made to give some idea of the characteristics of each province, farming operations being necessarily dictated by the nature of the soil and its formation; such descriptions will draw the attention for a moment from the consideration of corn and cattle only, and make the latter better understood. An object may be looked at so steadily that in the end it is not seen at all.

There is another motive for engaging in this work, and that is a desire to make known to English people more of one side of French life which has so many excellencies, and which, perhaps, has hardly had justice enough allotted to it by us. We judge French people too much by those of them about whom we hear most—politicians and literary men; but "political juntos, and the literary circles of a capital, do not make a people." The writer has a sincere liking for the French, which should assist him in his work; as it rarely happens that

a man succeeds in gaining any true knowledge of a country towards which he is not well disposed. There must certainly be diversity of opinion upon some of the statements to be found in this work; indeed, it is to be hoped there will be: as one of our great poets said lately, "It is not the difference I object to, it is the *in*difference." People will look upon the same objects and come to very different conclusions. Two young Hollanders, travelling to the Court of France in 1656, "to learn *bon ton* and see the world," thus describe the country between Montreuil and Abbéville: "Passed through a fine country, sometimes broken into slopes and hillocks, sometimes consisting of valleys and plains, sometimes in plantations and woods; so that we may say with truth, and without disparaging other countries, that France is a terrestrial Paradise." The apology to other countries shows that these two young gentlemen were not wanting in natural politeness. Now, Arthur Young, going over the same ground in 1787, says: "Montreuil to Abbéville, unpleasant, nearly flat; and though there are many and great woods, yet they are uninteresting."

There are no references in the margin of this book: a list of the works consulted is given at the end; and any quotations in the body of the work, not otherwise specified, are from Arthur Young.

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THE CORN AND CATTLE PRODUCING DISTRICTS OF FRANCE.

INTRODUCTION.

"To know our own country well we must see something of others."

"There is no country from which we may not glean something; nor any people whose rules and experience, when properly combined with what we already possess, may not prove a valuable addition to the common stock of knowledge."

"The candid reader will not expect that minute analysis of common practice which a man is enabled to give who resides some months or years confined to one spot; twenty men employed during twenty years would not effect it; and supposing it done, not one thousandth part of their labours would be worth perusal."

"To investigate such questions fully would demand dissertations expressly written on every subject that arises, which would be inconsistent with the brevity necessary; I attempt no more than to arrange the facts procured."

"If some future traveller should examine France with the same attention I have done, he will probably find, under a free government, all these proportions (of produce in England and France) greatly changed; and unless the English Government be more vigilant and intelligent than it hath hitherto been, France will be able to boast as great a superiority as England does at present."—ARTHUR YOUNG.

Agricultural Statistics of the French Provinces treated of in this Work.

Provinces.	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.	
Normandy ...	1,739,134	6,876,005	3,490,002	837,852	225,401	607,719	260,430	830,426	1,015,736	281,482	Hives of Bees, 307,375
Brittany	2,874,868	8,502,906	4,778,348	1,784,415	901,981	505,950	339,772	1,683,042	399,601	307,375	
Anjou, Maine, and Touraine	1,608,736	6,152,974	3,923,867	676,480	237,984	620,057	246,287	837,516	543,946	325,240	
Poitou	1,040,626	4,918,431	3,228,194	533,034	241,414	383,139	91,633	615,402	1,004,771	182,288	Asses and Mules, 23,011
Berri and Sologne	744,371	4,573,186	2,481,989	439,957	368,144	687,052	77,336	318,435	1,489,505	146,794	
Marche and Limousin	891,328	4,237,740	1,944,274	1,070,712	455,994	316,777	19,019	460,524	2,050,161	295,110	Asses, 20,585
Bourbonnais and Nivernais	721,822	3,531,230	1,950,982	407,970	159,727	732,772	30,219	369,343	581,915	168,796	
Gatinais and Beauce	748,602	3,634,682	2,428,782	124,350	157,760	492,618	87,935	250,780	1,206,689	83,002	
Ile de France and Brie	841,438	2,834,992	1,880,995	109,762	42,387	488,479	93,061	165,888	957,746	41,960	
Franche Comté	866,473	3,934,534	1,601,759	819,014	125,204	1,015,675	58,901	426,903	187,063	149,828	
Champagne ...	633,790	3,545,455	2,374,200	187,182	75,432	549,159	79,271	198,015	755,106	114,675	
Artois, Picardy, Pays de Caux, &c.	2,995,323	8,002,336	5,870,684	607,731	103,027	837,269	356,855	790,006	2,638,032	425,596	
Flanders	1,415,617	1,420,215	946,415	124,415	4,417	237,810	83,053	264,680	136,059	85,692	
	17,122,128	62,164,686	36,900,491	7,722,874	3,098,872	7,474,476	1,823,779	7,210,960	12,966,330	2,607,838	
France	36,102,921	132,262,435	65,751,942	18,388,365	11,064,257	20,892,665	2,742,708	11,721,459	25,935,114	5,755,656	
Urban ...	11,214,017										
Rural ...	24,888,904										

"I have now made the tour of the French provinces, and I shall in general observe that I think the kingdom is superior to England in the circumstance of soil. The proportion of poor land in England to the total of the kingdom is greater than the similar proportion in France; nor have they anywhere such tracts of wretched blowing sand as are to be met with in Norfolk and Suffolk. Their heaths, moors, and wastes not mountainous, what they term '*lande*,' and which are so frequent in Bretagne, Anjou, Maine, and Guienne, are infinitely better than our northern moors; and the mountains of Scotland and Wales cannot be compared, in point of soil, with those of the Pyrenees, Auvergne, Dauphiné, Provence, and Languedoc. Another advantage, almost inestimable, is that their tenacious clays do not take the character of clays, which in most parts of England are so stubborn and harsh, that the expense of culture is almost equal to a moderate produce. Such clays as I have seen in Sussex I never met with in France. The smallness of the quantity of rank clay in that kingdom is indeed surprising. Throughout the whole kingdom there is hardly any soil bad enough to demand rye; all, generally speaking, is sufficiently good for wheat." —YOUNG.

"This vast territory, which reaches from the Alps to the Pyrenees, from the Mediterranean to the North Sea, this mixture of plains, hill-slopes, and mountains, opened up in every direction by four great streams, watered by hundreds of rivers and thousands of rivulets, like veins in the human body; those immense tracts of grass-land of the west coast, those noble old forests of the east district, those green pastures of the centre, those rich vineyards of Burgundy and Languedoc, those olive and orange groves of Provence, those golden harvests, waving on all sides, which bear the largest crop of corn in the world, that union under the same laws of an infinite variety of climates and of people, this epitome of the Low Countries and Spain, of England and Switzerland, of Germany and Italy, this bright collection of contrarieties, is our lovely, our dear France."—LAVERGNE.

ASPECT OF THE COUNTRY.

FRANCE fully justifies any enthusiasm her children may feel for her. She is the only country in the world which contains within herself everything that can be wanted to make life pleasant; if every other were to disappear, France would miss nothing in the way of necessaries—or even of luxuries; her own soil and climate would supply all.

The pastures of Flanders, Normandy, and La Vendée, support herds of cattle, giving unsurpassed meat and dairy produce; the centre has any amount of mutton and wool; no wheat yields finer flour than that of France. Fruits of all good kinds, from the oranges of hot climates to the apples and strawberries of cold ones; vegetables of the most delicate flavour; wines, from those coarse but wholesome ones at 10d. per gallon, to those whose price is as much per glass; oils for the table from olives, for household purposes from walnuts, rape, and poppy; sugar, to the double of her present consumption; salt, from abundant brine-springs and from evaporation; flowers in abundance at all seasons, for ornament and for perfumes; flax and hemp for the useful requirements of the country, silk for the ornamental; clay for earthenware; the finest stone for building; coal and iron in sufficiency; timber, either in existence or capable of being grown; mineral-springs of every variety, both hot and cold; all these France has, or can have, within her borders. She is self-contained, and could be self-supporting, and, in judging her opinions

as to free trade and commerce, her position in this respect must be considered, and she must not be measured by the standard we set up—we, who are dependent upon the world at large for much that is necessary to existence, and for so very many of those productions that make life beautiful.

Area of France.

The total area of France is reckoned to be about 132,000,000 acres, and is thus occupied:—

	Acres.
Arable Land	65,750,000
Woods and Forests	21,000,000
Mountains, Marshes, Bogs, Barren Land	11,000,000
Grass	18,500,000
Vineyards	6,500,000
Roads, Streets, Open Plots	2,755,000
Orchards and Gardens	1,500,000
Chestnuts	1,500,000
Rivers, Lakes, Watercourses	1,100,000
Buildings in Towns	600,000
Meres and Pools	443,000
Other land unclassed	400,000
Olive, Almond, and Mulberry Plantations	275,000
Osier Beds	160,000
Ponds, Open Drains	43,500
Cemeteries, Churches, Public Buildings	37,000
Navigable Canals	31,000
Quarries and Mines	9,000
	131,562,500

The northern part has no mountains; the Ardennes, which rise to 1,300 feet, are 120 miles to the east of Paris; the Morvan mountains to the south-east, nearly 4,000 feet high, are 160 miles away; those of the Bourbonnais and Auvergne, which range from 1,500 to 5,000 feet, are two to three hundred miles to the south; those of Limousin, reaching to 2,500 feet, are 250 miles to the south-west; the Vendée ranges, 1,000

feet, are 220 miles to the west; and those of Normandy, 1,300 feet, are 125 miles to the north-west.

The country, thus surrounded by the mountains and the sea, contains the basins of the Seine and the Loire, and is very far from being flat or unbroken. Except in Flanders, and in the numerous valleys, the level of the country is high; there is very little land less than 300 feet above the sea all the way from Flanders to the Loire. The rolling hills of Artois, Picardy, and the Pays de Caux, the table-lands of Brie and Beauce, the chalk downs of Champagne, average 400 to 500 feet; the central plateau south of the Loire is as high. The real mountains of France are in the south, in Dauphiné, the Cevennes and the Pyrenees. One has hardly yet come to consider Savoy as part of France.

Territorial Divisions.

France is divided into eighty-seven departments, each department into *arrondissements*, varying in number according to the size and population of the department, but amounting in the whole to 365; these again into cantons, numbering about 2,900; and the cantons into about 37,000 communes. Legally, no other division is recognised, but the names of the old provinces are retained in common parlance; and, with very minor differences, the boundaries of the departments run very even with those of the old provinces. The limits, whether of the old or of the modern divisions, were not settled with any reference to the soil, consequently, the statistics published often include the produce from lands essentially different.

National habits are too strong for official orders; and it is more common for people to use the names of the provinces than those of the departments, except where the provinces are so large that the department more clearly indicates the locality. But here a host of smaller divisions, existing from time immemorial, specify still more clearly the part of the country that may be in question. There are about two hundred names of small principalities, dukedoms, counties, and townships, retained by the inhabitants, and recognised by every one in France, which are as much in use now as before the Revolution. Normandy is spoken of more commonly than any one of the departments into which it is divided; and if it were wished to indicate any special part of Normandy, the name of the local division would probably be used, not that of the department: as, the Pays de Caux, not the Seine Inférieure; the Cotentin, not the Manche; Perche, not Orne. We have some few instances of this in England—as Holderness, Cleveland, and Craven, in Yorkshire, Thanet and Sheppey in Kent—but every part of France has a local name, by which it is known as distinguished from the modern one of the department, or the old one of the province; and these names are still far from being meaningless: they keep alive the memory of the times when near neighbours were frequently at war—when the lord of one place was Burgundian, and that of another Armagnac; one a follower of Guise, and another of Condé. George Sand makes one of her characters say: "The obstinate rivalry which existed during

many ages between the inhabitants of neighbouring districts, and which is still bitterly alive, must be understood in order to comprehend the vehemence with which my old uncles and aunts insisted upon being Auvergnats, and having no sort of connection with Le Velay."

There are places in France the people of which rarely marry out of their village, and provinces whose inhabitants cannot understand the language of the province adjoining. At a trial recently in Perigord, interpreters had to be employed; and a visitor to the agricultural show at Mende, in the department of the Lozère, in 1875, could not obtain the information he wanted from the farmers because they could only speak the *patois* of Languedoc. In 1787 Arthur Young said that not one farmer in twenty in Flanders could speak French; this is certainly not the case now, but it would be true enough of the labourers in many of the villages.

The organisation of the préfets at the head of the departments, the sous-préfets in the arrondissements, and the mayors in the communes, all, even including the mayors, until quite recently appointed by the Government, assures an administrative unity; and the French are strongly bound together in national sentiment; but no country contains populations more distinct in language, in race, and in tone of thought. Flemings, Bretons, Burgundians, Provençals, Bearnais, Auvergnats, Limousins, are quite distinct. They would not understand each other if they met; and the inhabitant of one province would find himself as much expatriated on going to another as though he were in a

foreign country. Hamerton, in "Round my House," mentions the case of a peasant girl who left her village to reside some eighty miles off, but was compelled to go back because her friends would have it she was not in France, and that her reputation was endangered as it was reported she had gone away to misconduct herself in foreign parts. This, of course, is only true of the lower classes, but even with those above them there is a provincialism which limits their interest to what is going on in their own locality; and, barring some great exciting cause, people may live, and do live, on the shores of the Mediterranean without ever hearing, or caring to hear, about any of the ordinary occurrences of the France of the English Channel. These distinctive provincialisms have their charm, and ensure a pleasing variety in the intercourse of French society and the productions of French literature. If the French were a wandering people—which they are not—this characteristic would interfere greatly with their success. An English workman finds himself less from home over three-parts of the globe than a Frenchman a hundred miles from his own cottage.

Weights and Measures.

There is a unity, also, in the system of weights and measures which, like that of the territorial divisions, is more apparent than real. Legally, traders can only use the metrical system, derived from the mètre, which is the ten-millionth part of the distance from the pole to the equator; this is the standard of long measure; that of area is the are, which is ten square mètres;

the litre, the tenth part of a cubic mètre, is the unit of capacity; and the gramme, which is the weight of the tenth part of a cubic mètre of distilled water, is the unit of weight.

This is the national system, and any weights or measures not in accordance with it would be seized by the police; but in practice the system is habitually evaded. A writer of authority, M. Victor Borie, says:—"After the Paris Exhibition of 1855 a kind of international association was formed for the purpose of obtaining the general adoption of a uniform standard of weights and measures through the civilised world, and France, as having taken the 'glorious initiative,' was to have the charge of the standards destined to facilitate so greatly international commerce. Some progress has been made in twenty years, since a locality—the Pavillon de Breteuil—is being prepared for the manufacture and preservation of these standards; and certainly the honour should belong to France, for it was a Frenchman who first, and for the only time, measured the distance of the pole from the Equator. But ought we not to preach by example as well as by precept? Do we? The law absolutely forbids the use or quotation of any measures but those of the metrical system: what have our dear fellow-citizens done? By the aid of multiples and aliquot parts of the legal standards, they have re-established all the old local weights and measures. Take the following instances from corn markets in different parts of the country:—At Cannes, at Toulon, at Provins, corn is quoted at

per 160 litres; at Guise, at Lagny, at Lille, at Paris, per 150 litres; at Clermont, 130 litres; at Amiens, 200 litres. These, however, are all by measurement. Other markets make matters worse; they are quoted by weight—at Soissons, per 1,000 kilos; at Rennes, per 165 kilos; at Senlis, per 128; in the Meurthe et Moselle, at 100 kilos; at Angoulême, 80 kilos; &c. &c. You will understand the position of a wretched corn-merchant having to work out twenty, fifty times a day, this little problem: 'If 120 kilogrammes of wheat cost 23 francs 50 centimes, what is the price of 150 litres?'—'Being given the length and breadth of the ship, what is the name of the captain?' Now, you cannot hinder a man offering his corn in lots of 80, 130, 150 litres, or 128, 165, or any other number of kilos, nor punish any one for so buying it; the only thing that can be done is to forbid the publication by the local authorities, or in any newspaper, of quotations other than those of a uniform quantity all through the country."

This is perfectly true—the law is evaded: and though the deliveries are made in the legal measurements, the bargains are very often, over a great part of France, made in the old names. People ask for an aune of cloth, and they receive a mètre and 20 centimètres; for a pound of sugar, and they get 500 grammes; for a quarter of a pound of coffee, and they get 125 grammes. There are also many parts into which even the new names seem hardly to have penetrated—where the people know nothing of hectares, but give the measurement of land in journals, centiers, hommés, quartiers,

and bonniers; that of corn in bushels, or double bushels; talk about livres, sous, and liards—not francs and centimes—and quote the price of cattle in pistoles.

Population. This is not the place to add many more pages to those already written about what is called the depopulation of France; but it is impossible to pass the subject by without some notice, and difficult to write about it shortly. Before 1848, the annual excess of births over deaths was 200,000; from 1848 to 1868, it was only 100,000, which shows a loss of expected increase of 2,000,000 of people in the twenty years. The German War lasted only one summer and one winter, but cost France 550,000 lives; the deaths increased 400,000, and the births decreased 150,000.

In 1873 the excess of births over deaths was 101,776; in 1874 there seems to have been an improvement, as the births were in excess of the deaths by 171,943, this was not owing to an increase in the births, but to a decrease in the deaths, which is purely accidental, and cannot be depended upon; in the following year, 1875, the increase fell to 105,913. From 1858 to 1868 the births averaged about 1,000,000 yearly; in 1874 they were 953,652; in 1875, 950,975. From 1816 to 1869, in every year except thirteen, the number of births exceeded that of 1874, although the population was smaller; and 100 years ago, on a population of only 26,000,000, the yearly births were reckoned at 1,000,000, which is more than they are now, with a population of 36,000,000; and giving then a yearly

increase of 182,000 against one now of only about 100,000.

In the United Kingdom the excess of births over deaths in 1876 was 477,722; the yearly increase is more than four times that of France, and during the last seven years we have sent out an average of 103,000 emigrants yearly, while France only sends out 6,000. England abroad is increasing as fast as France is at home, by emigration alone, without counting the births in the colonies. In 1787 the United Kingdom had a population of 15,000,000 against 26,000,000 in France, now it has 34,000,000 against 36,000,000 in France—and has the colonies to boot.

This serious loss of increase is not owing to fewer marriages, as from 1872 to 1874 they were above the average, being 303,113 in the latter year; in 1875 they were 300,427. In the United Kingdom the marriages are about 252,000 yearly.

In 1873, 303,810 people reached the age of 21 years, in 1876 only 277,000.

From 1817 to 1833 there was one birth to every 32 of the population; from 1834 to 1846, one to 35; from 1847 to 1860, one to 37; from 1861 to 1868, one to 38; if the increase had remained the same as during the first period, the yearly births would now be 1,130,000 instead of 950,000; thus, compared with 50 years ago, France has lost about 20 per cent. of its fecundity. (*P. Le Roy-Beaulieu.*)

Although in former times the population of France increased at a far greater ratio than it does now, there

was always an objection to large families among the nobles, an objection which seems, in this country, to attach itself to the possessors of property. It was usual for only one of the sons and one of the daughters to marry: in some families the bearer of the title married, but the rule was not absolute; sometimes one of the younger sons was chosen to continue the family. Of the unmarried sons, one entered the army, and was Monsieur le Chevalier, one the church, and was Monsieur l'Abbé; the daughters not chosen to mate with their equals entered convents, some with religious vows, others into communities which possessed large properties, and whose members received visitors, and kept up a state of social hospitality equal to that of the nobles. Into some of these none but maidens who could show four quarterings of nobility, and could prove them back for two hundred years, were eligible, as in that of Remiremont, into which society the daughter of Gaston, brother of Louis XIII., found some difficulty in entering on account of her descent from the Medicis. The Abbess of Remiremont was lady of 52 manors and 22 lordships, and bore the title of Princess of the Holy Roman Empire. The fifty ladies of the society lived in separate dwellings, and had the title of Countess; their vows could be renounced, and they might marry, but it was very seldom that any of them did. "A document of the 16th century tells us what ought to be the elements of a noble house; we see that a small family was even then deemed essential. A gentleman must not have more than three sons. If he is rich, then the eldest son

and one of the others must be soldiers, and the third a churchman, or a lawyer; if he be poor, then only one must follow arms, the other two the professions. The eldest son should have no children; there must be as few daughters as possible, 'they are the ruin of houses; fortunately there are convents'" (Kitchin, "History of France.")

The relative diminution of population excites the most lively disquietude in French society, but as every individual has to think for himself, and is guided in his action by what seems his own interest, and not that of society, it is very doubtful if any remedy can be applied. If this state of affairs were clearly traceable to the laws of succession to property, these laws might be altered, but as they are in close conformity with the wishes of the people, it is not likely that they will be. The subject is alluded to by leading men of all classes, and the people are appealed to on every opportunity. A play has been brought out, "L'Ami Fritz," which looks as though it had been written with a purpose; it abounds with touching lines on the virtues of domestic life, and the joy of large families; and on its first representation in November, 1876, when the leaders of French society in politics, literature, and the arts, were present, the most pointed lines were received with such tumultuous applause that the actors could not proceed for some minutes at a time.

This slow increase of population is not viewed unfavourably by every one. It is better, say some economists, to have 2,000,000 people with plenty for them, rather than double the number with too little; that

France could hardly be better off if she had more inhabitants to live on what she produced; and Mons. de Witt, the son-in-law of Guizot, congratulates his fellow-countrymen upon not being obliged to expatriate so many of their best citizens, as other countries are compelled to do. The majority are against these views; an increase of people could not lessen the produce to be divided, if each produced more than he consumed, or as much. The worst poverty a nation can suffer is a poverty in the number of inhabitants, and if other nations send out emigrants they thereby extend the influence of their country all over the world, and give employment to those remaining at home.

France is not alone in this loss of increase, as it is also noticeable in Hungary, where the births have steadily decreased; this decrease is wholly among the Magyar population, the Germans and the Slavs increase. In 27 counties, mainly German or Slavic, the births exceed the deaths; in 52 counties, almost wholly peopled by Magyars, the deaths exceed the births. During the Austrian rule the births exceeded the deaths by 104,000 yearly; in 1871, when there was an addition to the population of 1,200,000 by the incorporation of the military frontiers, the increase was only 50,000.

If society at large is disquieted by the small increase of the people, the farmers feel it more acutely and directly. The census of 1872 showed, after allowing for the loss of Alsace, an absolute decrease of 492,000 since that of 1866; but in this period of six years the towns with a population of over 10,000 had increased

221,000, which makes the loss of rural population more than 700,000; and this transfer of workers from the country to towns has been going on for years; the loss from 1851 to 1861 was 1,100,000. In 1846 one-fourth only of the total population was urban, in 1872 the proportion was 31 per cent., nearly one-third.

We may be sure that people would not leave the country for the towns unless they could make money enough there to keep themselves. Wealth has increased, and with it the wants of those who have the wealth; these wants are mainly supplied in towns, which consequently offer inducements of all kinds to the rural population to desert the fields and take service where higher wages are paid, and where life is more cheerful. At every agricultural meeting speeches are made urging the workmen and women not to abandon the calm and healthy life of the country for the exciting and dangerous occupations of towns; and when the money prizes and medals are presented to those servants who have been longest in one employ, the President is always full of praise of such conduct, as a memorial of the good old times contrasted with the present. He does not quote Shakespeare, but he gives a French version of Orlando's speech to Adam; but when and where was that "antique world, when service sweat for duty, not for meed?"

The teachers in the village schools are to urge upon their pupils the happiness of a country life, and our old friend "O fortunatos Agricolas" is continually cropping up. It all seems useless. France is shorthanded, and

workmen will drift where they get best paid and enjoy themselves most; and they will leave the occupation of a farm-labourer which has long been the hardest, the worst-paid, and the least respected in the country. Whoever has seen the sordid and miserable French village, the badly-constructed and ill-drained dwellings, with stagnant pools and dung-heaps before the doors and under the windows of the cottages, will understand how much more agreeable it must be for a man to live in a town than to remain in them, even with all the affection which a Frenchman is supposed to feel for his "*pays*," his locality.

At times of pressure farmers must offer high wages to get their work done; as much as from 3/6 to 5/- per day, with board in addition; and whereas formerly labourers were thankful enough to sit down with the farmer, and partake of the same fare that satisfied his family, they are now often more exacting, and special and extra food has to be provided for them. In this last respect they are probably not much to blame, as the living on many French farms is on too low a scale, from parsimony, not always from necessity.

Another cause, unknown in England, increases the difficulty of French farmers with their labourers: in most parts of the country the latter are, either directly themselves, or indirectly through their fathers, owners of a bit of land, which makes them partially independent, and not at the beck and call of those who want them; 75 per cent. of the agricultural labourers of France are so situated.

The loss to the farmers is represented by quality as well as by numbers. During the last twenty years the rural population has diminished perhaps a tenth, but the real working power has fallen off by a fourth, as it is the best and youngest who leave, the timid, the ignorant, and the stupid, remain. The conscription for the army also takes away the young hands for three or six years at their prime, when their habits are forming; and after that time of barrack or camp life they do not return willingly to the dullness of the village, which appears doubly dull by comparison with the good-fellowship of the regiment and the brightness of the towns; they miss the glare of the gas, the shops, the occasional music, the life of the streets, and the bustle of the railway; so at the end of the term of service many soldiers remain in the towns, where they easily find employment.

The increased value of labour may prove to be a corrective to the excessive craving for land. No life is so hard as that of the peasant working his own land; and the change from such toil—which at the year's end, by the most niggardly starvation system of living, leaves less money than could be saved out of easy work and good living in towns—will perhaps tend to take the children of peasant proprietors out of the old groove.

Another complaint connected with population comes from the farmers: they say that when they want to settle their sons in their own business they cannot find

Marriages.

suitable wives for them. There is an impression among English people that marriages are arranged in France without consulting the feelings of those most deeply interested, and that young people are engaged to be married before they have perhaps even seen each other. Error. Girls in France do not marry men they would rather not marry any more than they do in England. Marriages are certainly more directly discussed by parents before any formal engagement is made than they are with us; but it is almost always on the demand or with the assent of the young people; and it can rarely happen that such an engagement can be made between strangers: one stranger could hardly ask another to let their children be married; there must be some previous acquaintance. There is an advantage in this French system; a great cause of family discord is removed when it is not possible for the parents of one child to express dissatisfaction at the engagement, or, indeed, for the parents of both, as is sometimes the case here. There can be no remarks about the folly of Angelina taking up with Edwin, when she might have done so much better; or of wonder at what Edwin could see in Angelina, who hasn't a penny, when he might have had Miss Plomley with £10,000 of her own, &c. &c.

It seems that farmers do not find their daughters willing to lead the lives their mothers have led. They have had some education at a boarding-school where they have met companions from the towns; from them they have heard of the delights of a town life—the quiet work of an afternoon, after the household duties

of the morning have been fulfilled, enlivened by discussions upon costume with friendly neighbours; the frequent concerts; the occasional visits to the play when a Paris company has come down to the provinces; the annual ball at the prefecture, the evening parties at the sous-prefecture, where perhaps the refreshments are only cakes and syrup and water, or may-be ices, but where there are always music, lights, flowers, gay dresses, servants in gorgeous liveries, smiling faces, gentlemen in full dress, officers in uniform, a good sprinkling of high-class-looking men with decorations, and a gracious welcome—

"Gay fancy's beams the truth adorning;"

and when the father tells the girl that his old friend Jean is thinking about giving up his farm and establishing his son, and that young Jean wants a good wife, and would like to see his little Virginie mistress there, he as likely as not gets for answer, "No, no, *petit père*"—little father—("little" being a term of affection, and having no reference to size, little father weighing probably eighteen stone)—"No, no, little father. Jean is a good fellow; he has always been a good son; but life at the farm with him does not look smiling enough to me. *Petit père* must find some other *parti*." Then she puts her head on his shoulder, and pats his broad chest. She is in no way anxious, as she knows the decision does not rest with "little father," but with that other parent who is always the most deeply loved by every French child—

"*Bonne mère*, dear mother, sweet mother." "Go, go, little one; disquiet not thyself. Thy father would have liked it; but he won't insist." She knows too well how hard her life has been—the earliest up in the morning, the last to rest at night; watching and worrying about servants yearly becoming more difficult to manage; slaving to make money, and sparing to save it; and having saved it, willing enough to keep her child from a similar existence. She is proud enough when she can introduce some "well-considered" young man, in a glossy black dress-coat and white tie, who is destined to "make the happiness" of "our Virginie." And he does make her happiness: if he is a lawyer, her dowry goes to help towards the purchase of a practice in the town, or if he is in Government employ, the income helps the household expenses; if in trade, it buys the goodwill of a business. The mother sees with pleasure her daughter's life passing cheerfully and happily. At the end of the first year the young couple find they have lived within their income; and every year adds to the store which they put by to establish their little bullet-headed boy when he grows up, and to make a dowry for the little round-eyed girl, or mayhap to provide for three; but they never get beyond the traditional number.

But if the Virginies, who are capable of throwing some grace into the dull surroundings of country life, thus quit the country for the town, what are the Jeans and the Brothers to do who have to manage the farms? This is the difficulty of which such frequent notice is

taken; and it is likely to increase rather than diminish, unless life at a French farm can be made more attractive. As a mere matter of money-making a French farmyard in a good country is all that could be desired. Large enclosed yards, good buildings, the house overlooking the yard and buildings and all that is going on, but with none of the attractions that make the smallest homestead in England the sort of place a moderate-minded man would be content to spend his life in. If the good farms are like this, one may judge what the others are: the farmer and his family living in the kitchen; the floor of mud, the walls perhaps also of mud; poultry as free to come and go as the master and mistress. Country life in France for a farmer's wife has no attractions to compete with those of the towns.

Here is no rector with perhaps a very small income from the church, but with private means to enable him to live nicely, having, may-be, a family of daughters whose gracious presence refines the whole place, or three or four pupils to smoke a friendly pipe with the farmer, have a "crack" about dogs and horses, and bring to his knowledge the ways and habits of the higher classes. Instead of this, a worthy priest, at a salary of fourteen shillings a week, performing the service in a cold, deserted-looking church to a miserable collection of the poorest in the place (if the few attendants in many parishes are worthy the name of collection), in marked contrast to the parish church in England, to sit in which for a couple of hours once a week is an education of

itself. Fourteen shillings a week and a hopeless future! —at least a future may be called hopeless in a worldly point of view when all that can be expected is a rise to the dignity of a parson of the first class, at twenty-three shillings a week, or the higher glory of a canon in the cathedral at twenty-six shillings! And yet France is full of self-sacrificing men who take this work, and do it conscientiously, tramping through snow and heat to the bedside of the sick and dying who during their lives have neglected their ministrations and jeered at their sacred office. Nor is there any or much compensation, socially, for these men outside their duties. Some bishops have shown that the money receipts beyond the legal stipend do not exceed £1 a year for each clergyman; and as for social position, there are not too many priests who, from their connections and education, could mix advantageously with those above the rank of peasants, nor are there too many places where there exist families able and willing to offer the hospitality of their houses. No wonder a certain number leave the profession to which they have in most cases been devoted without any consultation of their wishes. It is said that the cab-drivers in Paris are largely recruited from unfrocked priests. This is not easy to verify; but unfrocked is too hard a word to use: it seems to signify that they had disgraced their cloth, when perhaps they only found that fourteen shillings a week, with a remote chance of twenty-six shillings, was not a sufficient compensation for a life of dull self-abnegation. It

is easy to understand that the life of a Paris cab-driver offers far more attractions to any but a most spiritually-minded man than that of a lonely parish priest, denying himself creature comforts every day of his life. The Paris cab-driver is master of the situation on the pavement; there are generally more customers than there are cabs: he does not move a couple of streets' length under eighteenpence. No other occupation in France offers so many specimens of rosy-cheeked, well-fed men: two hundred cab-drivers of Paris would outweigh three hundred of their fellow-jarvies in London.

Farming in France means business, and wants the attractions which educated women look for; for most days in the week, except on market-days, and then only partially, the farmer over a great part of the country cannot be distinguished from his labourers by any superiority of dress or personal appearance—it may even be said, of manners or speech.

Division of Estates.

The smallness of the increase of population is asserted generally to be directly caused by the division of the inheritance among the children, and is more observable among those who have property than among those who have none. A landowner, however small his holding may be, no more likes to see his family descend in rank than do those above him, and to avoid it will keep the numbers small enough to attain this end; the French have not primogeniture, they meet the case by having unigeniture.

If this is the cause of the evil, it is directly contrary to what was expected by writers of authority in times past. Arthur Young considered France greatly over-populated in 1787 with 26,000,000 inhabitants, compared to the then 15,000,000 of Great Britain, and their "great populousness I attribute very much to the division of the lands into small properties, which takes place in that country to a degree of which we have in England but little conception. Whatever promises the appearance even of subsistence induces men to marry. The inheritance of 10 or 12 acres to be divided among the children of the proprietor, will be looked to with the views of a permanent settlement, and either occasions a marriage, the infants of which die young for want of sufficient nourishment, or keeps children at home, distressing their relations, long after they should have emigrated to the towns."

Macculloch, in his "Principles of Political Economy" (1823), says: "The division of property necessarily weakens the desire to accumulate fortune, over the disposal of which it allows so very little influence. If the law be not repealed, or some countervailing principle be called into operation, it bids fair, in no very lengthened period, to reduce the agriculturists of France to a condition little, if at all, better than those of Ireland." Some countervailing principle is in operation, and probably was at the time he wrote, only not discernible by him or any one; for whereas he said in 1823 that in fifty years France would become a "pauper warren," the irony of fate willed it that precisely at that time she

showed herself capable of bearing the heaviest load ever laid upon a nation—a load which would have been mortal for any other country, and was then declared by another Macculloch, late United States Finance Secretary, to be "financially in most respects better than any nation in the world," and to be "as a purely agricultural country, undoubtedly the first in Europe."

At the moment of their deepest anguish Englishmen and Americans came forward and helped the peasant farmers with assistance in the way of seeds and implements. No act of kindness was ever more gratefully accepted, and none ever had so good an effect in cementing national good feeling. The impression is not likely ever to die out; but many subscribers to the fund will be apt to think as the countryman did in the old song, when he received a guinea from a lord in waiting, after having given a shilling to George III. for showing him round the gardens at Windsor, mistaking the king for a servant—

> "If I'd a known he'd got so much money,
> Darn my wig if I'd gi'en him the shilling."

If the slow increase of population in France is caused by the division of the land into small properties, as is so often asserted, it must be submitted to; for this cause is not likely to be removed, it is approved of far too generally by the leading men of all shades of political opinion. A report read by Mons. Bochin, before the Société des Agriculteurs de France, and adopted by the Société, and printed in its proceedings, states that "this division of land produces a position, the happy con-

sequences of which we cannot too fully recognise." And again he says, "It is an advantage for which we ought to be deeply thankful to Providence, because it is the best bulwark against a false socialism, the most efficacious obstacle to oppose to subversive doctrines. Can we overlook, in comparing France to England, the workmen's societies, trades' unions, and similar societies formed among farm-labourers, threatening the country with a social and economical revolution, against which France will find the most solid rampart in a wide distribution of real and personal property, a system which will ensure the continual development of both." And again, "small landowners the chief element of our national wealth?" The same strain of satisfaction runs through the writings of French economists; we must assume that they know their country best, and what best suits its wants; and this equal division of property among all the children is so much in conformity with the wishes of the people that it is seldom that a parent makes use of the power he possesses over a portion of his estate, to leave that portion to any one child to the exclusion of his brothers and sisters.

If a man has one child he has a power of disposal over half his property; if two children, over a third; if there are three or more children, over a fourth. If he makes no special disposal, they share equally.

It is commonly supposed that this right to share equally in a parent's property originated in laws passed during the revolutionary period, and confirmed by the Code Napoleon. This is not so—the custom is older even

than France itself; it was practised by the Gauls before the land was conquered by the Franks, and the descent of land to one child, and the attaching lands to a feudal title, are of comparatively modern introduction. The Roman law, which was the law of Gaul before the Frankish conquest, gave to each of the heirs a fourth of what he would have had if the deceased had died intestate. The code of Justinian increased the rights of the heir and the co-heirs, and if they were more than four in number they took, not a fourth, but a half; if less than four, then they took a third; the limitation of the power of disposal is therefore not new, but very old.

The effect of this law was so great that Arthur Young could say, in 1787: "The number of small properties is so great, that I am inclined to suppose more than one-third of the kingdom occupied by them." Young's estimate was no doubt founded upon sound information, but not upon trustworthy statistics, and may be exaggerated; and he does not say what he means by small properties. Mons. Leonce de Lavergne (1862) states that one-third of the territory, 37,500,000 acres, is in the hands of 50,000 owners, averaging 750 acres each; another third in the hands of 500,000 owners, averaging 75 acres; and the last third in the hands of 5,000,000 owners, averaging 7½ acres. If the limit of small properties be extended to 25 acres, it would seem probable that by this time half the country will be so held; however this may be, in most of the departments the estates of 250 acres can be easily counted, and there are not 15,000 owners whose

income from land exceeds from £280 to £320 per annum.

The cultivated land is occupied by 3,225,877 farms, each under separate management; more than half the number, 56 per cent., are under 12½ acres; a fifth from 12½ to 25 acres, so that three-fourths of them are less than 25 acres. In six departments from 700 to 900 farms out of every 1,000 are less than 12½ acres; in the six which have the fewest small farms the proportion is nearly 400 in the 1,000 of that size.

The report of Mons. Bochin to the Société des Agriculteurs, already quoted, puts the value of the freehold property of France at nearly £4,000,000,000 sterling, two-thirds of this being land, and one-third buildings, and the rent at £128,000,000; of which £80,000,000 are from land, and £48,000,000 from houses. There are 14,000,000 entries of names for land-tax; but, allowing for those entered in duplicate, the soil is estimated to belong to about 9,000,000 persons. Of these 9,000,000, 7,500,000 represent the medium and small properties, 3,000,000 of the owners of which are in a condition bordering on destitution—are, in fact, often in receipt of charitable relief, and they pay no direct taxes. This estimate sufficiently confirms that of Mons. de Lavergne, the difference of 2,500,000 being made up by the increase between the dates of the two estimates (nine years), which would amount to quite 800,000, and by the well-founded supposition that many owners evade the tax on land in consequence of imperfect registration to the extent of

quite 800,000 out of the 14,000,000 entries, and to the amount of something like a million, or a million and a half sterling in money yearly. The other 900,000 would be accounted for by Mons. Bochin extending the limit of small ownership to 10 acres, whereas Mons. de Lavergne calls it 7½ acres.

In 1826 the ministry of Mons. de Villèle attempted what we should consider a very small change in the law of succession, viz., "That if the deceased had not disposed of the part over which he had power, that portion should descend to the eldest male heir; but that if the deceased should have expressed his wish by deed that such descent should not take place, the division should be made as usual." The proposal was hotly debated for three days in the Chamber of Deputies, where it was carried by a majority of 261 to 75; but it was lost in the Peers by 120 to 94. Paris was illuminated for three nights, the result being considered a great triumph over an attempt to restore primogeniture, and is even now quoted as an argument in favour of a second chamber. During the discussion the minister stated that since the Revolution, 660,000 persons had bought church lands, 440,000 had bought the estates of twenty-seven emigrant families, and 110,000 had bought common lands, altogether a million and a quarter of new owners had taken the places of 30,000 old ones.

The church lands were to a considerable extent bought by those who farmed them, and in many districts the farms remain to this day of the same

size they always were. There was no immediate change in the farming, as these lands were always well managed.

The lands of the nobles were susceptible of and received immediate improvement, for in a very great degree they had been grossly neglected, left untilled, indeed; and where tilled, the crops much eaten up by game. Arthur Young says: "It is the same everywhere, on the properties of those great landowners, heaths, deserts, and underwood; their residences surrounded by forests full of stags, wild boars, and wolves, partridges enough in places to eat up all the crops, a covey upon every two acres, on some places more." A fifth part of the territory was owned by the nobles, and it was put up for sale at the same time as the Church property; but, though the Church lands absolutely changed hands, that belonging to the nobles for the larger part returned to them. "Not more than about one-third was sold when offered, and the unsold part was returned to the owners during the Empire, or on the Restoration in 1814. Of the portion sold, some was bought for account of the owners, some restored by the purchasers on repayment of the purchase money, and some was compensated for by the indemnity paid in 1825. The actual loss did not exceed £16,000,000 sterling out of a total of 120 or 160 millions, and that loss has been more than replaced by rich marriages, so that the majority of the noble families supposed to be ruined by the Revolution is really richer now than in 1789." (Lavergne.)

The sales of the communal lands were certainly beneficial; but they were suddenly stopped on the plea that by their sale poor inhabitants were deprived of a valuable privilege—a perfectly true plea, but one which was against public policy; 12,000,000 acres, the tenth of the territory, were thus doomed to remain almost barren, and removed from the influence of any improvement. Some by agreement has since come into private hands, particularly in the north-east and north-west, where, indeed, there are now hardly any common lands; but too much yet remains in the same unproductive state. Those who seek the improvement of French farming are trying to reduce the injury done to a minimum, and a new rural code has been drawn up, and will probably be adopted, which defines and limits these communal rights, and which will facilitate sales and inclosures.

By the law of 1793 the division of common lands when determined upon was declared to be made equally between every domiciled inhabitant of every age and of each sex, absent or present, subsequently altered to a division equally to each "hearth." Decisions since then have supported the rights of the commune to the land, and prohibited the gratuitous division, but have authorised the sale of them.

In Marche and Limousin, where every house in every village has the use of common lands, the practice has been to set out as many lots as there were households, and to alienate them to each household on condition of the payment of a perpetual rent-charge, or, more

generally, of a sum for a fixed term of years. This system is really only a division as before, the commune —that is, the inhabitants—benefiting by the annual payments made, the money paid by them coming back into their own pocket. This is a clear evasion of the law, but it is practised; and a question has arisen as to the right of an inhabitant to one or more shares if he possessed one or more houses. Judgment was given in December, 1876, by the law courts of Guéret, in Creuse, to the effect that occupation gave a right to use of the common lands, provided the occupation were in a detached residence; that whether a man were the freeholder, or only the tenant, he had a right to the usage of the lands, and that therefore the freeholder could claim in the division as many portions as he had houses occupied by tenants, because the partition was a compensation for the deprivation of the use of the land; but that if his houses had no tenants, therefore having no one who could claim to use the land except himself, no compensation would accrue beyond his own claim, and he could only have one share, he being the only occupier.

These rights are the remains of a system of holding property in common which existed in France in past ages—and, indeed, throughout Europe—and in England, where many traces of it may yet be seen. In some places they are interpreted to mean the right of pasturing on stubbles for a fixed time; so that nothing can be done on the land for that period, and clovers can

not be sown on spring corn where the claim is allowed.

But if there is a general agreement as to the partition of inheritance, there is a very general objection to the way in which it is carried out, the result being the cutting up the land into strips so minute that the trace of them is almost lost, proper cultivation impeded, labour needlessly wasted, and difficulties in families and between neighbours woefully increased. The 9,000,000 landowners have among them 143,000,000 lots—say something like sixteen each—often miles apart. (*Bochin's Report.*) The law says "each one of the co-heirs may claim his share of the real and personal property," and "in forming the portions of each, it is as well to avoid, as far as may be possible, cutting up the inheritance, and also well to give each co-heir the same quantity of real or personal estate." The courts have interpreted this to mean that a division must take place if claimed, and have quashed wills which made a disposition to one heir of the real estate, and to another of the personal, or to each co-heir a separate real estate, although the value of each might be fairly apportioned. The consequence of this is a continual division and subdivision of plots of land, until at last no cultivation is possible except with a spade- and in some cases that must not be a full-sized one; and a tree cannot be planted on an estate because it is illegal to plant one within two yards of your neighbour's boundary, and your neighbour on each side is within that distance.

A commune in the Meuse consists of 2,080 acres, owned by 270 proprietors, but there are 5,348 different lots: each proprietor must have about twenty estates in the same parish! At Estrées St. Denis, in Oise, the lots had got so small that each holding was only about thirteen square perches; the owners agreed to have the land put together, and set out in lots of from half to three-quarters of an acre, and then sold to the highest bidder (only previous owners to bid?); the value was doubled, trebled, and in some instances decupled. In some communes the land is re-allotted, each owner having as much as he had before, and the saving in roads and pathways has covered the expense. The boundaries of the lots are sometimes undistinguishable, and an absent or careless landowner finds his little morsel gradually becoming less by the wrong turning of the furrow by a grasping neighbour.

When the ground was taken for a new cemetery for Paris, the true boundaries could not be proved for more than half the properties, and the reporter asserted that the same difficulty existed in three-fourths of the departments of France.

There are nearly 6,000,000 of transfers of property yearly, of which about a quarter are sales; they are, in a large proportion, made with considerable uncertainty as to boundaries, and lead to innumerable disputes. Out of the 45,000 civil causes tried yearly, 22,000 relate to successions to property. "Property in France at this time is in a deplorable state as to title; in this respect deeds of transfer have become real labyrinths, through

which the lawyers can hardly find their way, and of which the outside world cannot, by any possibility, make out anything. This is a serious difficulty in the way of transactions in freehold property, and a clog upon sales and mortgages of real estate. Before lending on mortgage or deposit, or completing a purchase, what examinations to make, what dangers to dread, what legal snares to avoid! And when the lender or purchaser has taken all these precautions, fulfilled all the legal formalities, he still runs the chance of being robbed. Such has been seen, is seen, and will be seen, as long as our system of hypothecation is so complicated. We must have great changes to protect efficaciously the credit of our real property."—V. EMION, Advocate at the Paris Bar.

This seems an interminable and ever-increasing maze of difficulty, but land is bought all the same with avidity when it can be got hold of. Small owners give any price for land bounding their own; day labourers, who are receiving much higher wages than formerly, save and buy, so that now it is calculated that three-fourths of them through France are also landowners. It is clear that these small holdings, worked by a man's own family, do pay, and, considering how largely agriculture is likely to become an affair of kitchen-gardening, will continue to pay more and more. These farmers are not dependent upon hired labour; they do not want improved machinery; they get a sufficiency of manure; they do not grow corn, which is becoming yearly less profitable; nor sheep, the wool of which is now under-

sold by Australia; but they have cows which bring them money, or money's worth, every day; they grow special articles, such as the climate of France allows them to do—vines, fruit, and garden produce, for which there is a ready sale; indeed, for this, France is becoming the provider of a great part of Europe, particularly of England.

This excessive division is no new feature in France, any more than the equal partition of inheritances. There are documents now in existence of the date of the sixteenth century, having reference to sales of land in parcels as small as half an acre, and even of the fifth part of an acre. In all times the French peasant has somehow contrived to buy land. Clad in rags and half-starved, depriving himself hourly of necessities, he put by money sou by sou. This economy was in some measure forced upon him; had he not made his poverty evident he would have been more heavily taxed. When the taxes were paid punctually, such a proof of prosperity would be sure to cause an increase of the charge for the following year, so that seizures for arrears were almost universal, and the peasants thought it cheaper to pay the expense of these seizures rather than be supposed rich enough to pay the taxes when due. The land, so badly cultivated, paid no rent; owners, indeed, had to supply seed and cattle, and even, when the harvest failed, to support the people until next harvest came round. Landlords were not sorry to rid themselves of bits of land when a price was offered, and rid themselves at the same time of responsibilities. The steward,

bribed by the peasant, says, "Useless bit of land, my lord—costs more than it brings in; taxes are in arrears," &c. &c., and any price was taken. During the last century peasants became landowners to an extent not so very far short of their present number as is generally supposed. Arthur Young says, in 1787: "The small properties of the peasants are found everywhere, in every part of the kingdom, even in those provinces where other tenures prevail. I have more than once seen divisions carried to such an excess that a single fruit-tree, standing in ten perches of ground, has constituted a farm." And the peasant had such a hold on the land, in one way or another, that Maine says: "The sense of property in land was not in the Seigneur, but in the peasant."

The manifest injury to agricultural progress caused by this minute "breaking up the land into powder" is causing much discussion; but at present nothing has been done to check it. The *Societé des Agriculteurs* supported the proposal that it should be legal for a man to will to one child his real and to another his personal estate, provided the division were of equal value; but it fell to the ground. It also recommended that the redistribution of the lots, when called for by a majority of the owners, should be compulsory. This also has met with no success at present.

Families often endeavour successfully to avoid the disastrous division by mutual arrangement. It is not every one who wishes to remain on the plot of land: other occupations are chosen; and then the one who

continues buys the share or shares of the co-heirs, or he rents from them, or he farms on joint-account; and frequently enough, the girl, rather than see the family reduced, will remain unmarried, so that her portion may continue undisturbed. The notion, however, so often repeated in argument, that "division of property necessarily leads to poverty, the landowners becoming poorer and poorer at every generation," is shown by experience to be utterly wrong. The men make money, and buy land back which has been divided, or they do so with the dowry of their wives: the law of succession divides, accumulated wealth unites; small properties increase a little at the expense of large ones, but very much at the expense of medium-sized ones. What we call small ones—say from ten to twenty acres—are increasing in number yearly, to the satisfaction of every one concerned; and if a remedy could be found for the splitting of them up into minute lots, few complaints would be heard against the system. That remedy will probably be found in the higher value of labour, which will make co-heirs more ready to seek some other employment, rather than drudge on a modicum of land which cannot reward them so well as paid services.

The large estates are not so frequently divided as the medium-sized ones; when for sale, they are found to be too large to meet with buyers in sufficient numbers if cut up, and arrangements between families as to partition of the inheritance are more readily agreed to, landowners seldom having more than a proportion of their property in land, about one-third being the usual

limit. One very favourite investment is the purchase of poor land to be improved by drainage, irrigation, or planting; the owner feeling that whatever money he may judiciously expend will come back to the whole of the children, either by division or by sale, and will not be for the sole benefit of one. Some of the most important rural properties in the country have been built up in this way; and in spite of the seemingly small number of large properties, it is seldom that a newspaper can be taken up without finding advertisements offering more than one of from 500 to 1,500 acres for sale. The estates that are disappearing are the medium-sized ones, of from 50 to 150 acres; they are eaten into on both sides. A large landowner is glad to add to his estate a small adjoining one, and small owners will give almost any money to put another small bit to what they already possess. It is common enough for half a dozen small men to depute one of their number to bid, and then have the land divided among them. It is these medium-sized properties also which are the most useless to their owners; in most cases they form only a portion of the family property, and the owner has occupations which prevent his giving his personal attention to the management. They are too small to be profitably farmed by a bailiff, and too large to be worked by the family, even if inclined to the business; and hired labour is becoming yearly more unobtainable. These medium farms at one time offered good specimens of high farming, but the discouragement has been so great that they are disappearing; and as an

instance, in one department—that of Maine et Loire—in 1865 there were twenty-nine competitors for the prize for good cultivation, and only two in 1873.

The temptation to sell these medium properties is very great, on account, not only of the price they make, but also of the many opportunities that now exist of investing money more profitably. They do not pay above 2½ per cent. to let, and they can be sold, when conveniently placed for division, at a price which bears no proportion to the letting value; there are, besides, always some uncertainties about due payment of the rent, claims for money for improvements, and want of facility of transfer.

Value. The competition, both as to income and convenience, of other investments with land, has greatly reduced its value, except where it can be sold at a fancy price to a large and rich neighbour, or to a dozen craving small ones. The evidence given before the Government commission in 1866 went to show that farming-land had fallen in value 25 per cent. in the previous twenty years; rents had risen, but the selling value had fallen: since that time the tendency has been in the same direction. In 1791 the annual income derivable from investments other than freehold property was estimated at £12,000,000; in 1849 it was esteemed equal to that from freehold; at the present time (1875) the total of the two united "cannot be put at more than £320,000,000, of which £140,000,000 is from freeholds, and £180,000,000 from other securities." In 1869 the investments in

Government stock by people in the departments was under £5,000,000; in 1873 it was nearly £20,000,000; but this was the year of the indemnity loan. The money, however, was actually paid; and it is to be noticed that country investors rarely sell. Within the last twenty years, the fundholders in country places have increased more than tenfold.

Charges.

The charges on land are very heavy—so heavy, that some writers assert the value of the fee-simple is paid into the treasury every seventy-five years, in the course of three generations. The mortgage debt is put at £480,000,000, which is one-sixth of the estimated value of the land, borrowed at a high rate of interest; as much, including costs, as 7 per cent. calling for a yearly payment, mostly from the smallest owners, of £34,000,000; a heavy burden, but which is yearly reduced by some, to be increased by fresh buyers and borrowers.

Population.

From the above statements, it would seem that the "countervailing principle," stated by Macculloch to be necessary, in 1823, to stop France from becoming a "pauper-warren," has been actively in force for the last few years, and has greatly changed the French character. Before 1790, we have it on the best evidence that small and minutely-divided properties existed as they do now, and, in proportion to the number of people, to fully as great an extent, or even greater; and yet at that time the increase of the people was double what it is now,

on a population one-third less. A hundred years ago, France could send out colonies to Canada and Louisiana, and was before us in occupying part of India. She was incomparably less rich, and the people were miserably fed and, from all accounts, vilely treated. At the end of the seventeenth century, La Bruyère describes the peasantry as "men who would be taken for male and female wild beasts, having nothing human about them but their shape, hiding themselves at night in caves, where they live on roots, black bread, and water." The Duke de Lesdiguières writes, in 1675: "The majority of the inhabitants of the country have no bread but that made from acorns; and at this moment (May) they are eating weeds and the bark of trees." This was in a short-crop year.

Boisguillebert writes, 1699, of Normandy: "The tenth part of the inhabitants is in beggary; the half of the rest has barely necessaries, and of the other half, three-fourths are a long way from a state of comfort."

The governor of Normandy, at the same period, says: "In the district of Rouen, which was always one of the most industrious and well-to-do, among a population of 700,000, there are not 50,000 who eat bread regularly, or who sleep upon anything but straw."

All through the eighteenth century complaints of the miserable condition of the people abound. Vauban says, in 1707: "The tenth part of the people live by begging: two millions of beggars out of a total population of 20,000,000. Of the nine other parts, five can give no help because they themselves are too nearly in

the same condition, and of the four remaining, three are very badly off. St. Simon says, in 1725: "The poor in Normandy are eating grass, and the kingdom is becoming a vast hospital of dead and dying."

When a scheme for obtaining public assistance was set on foot, in 1735, D'Argenson writes: "The first conditions of success are wanting; and they are, that our villages should not be deserts, and the few inhabitants themselves not beggars."

Massillon, in 1740, says: "The people in our country are in a frightful state of misery—without beds, without furniture. The majority for half of the year have, for sole food, bread made from barley or oats; and they are obliged to deny themselves even this to pay the taxes. . . . Half of the land formerly cultivated is now abandoned. . . . On these deserted estates, the farmer, crushed by misery, is without resources and without strength; and the children who do not die of starvation leave the country for the towns."

In 1745 the Duke of Orleans placed before Louis XV. a loaf made from heather, saying, "Sire, this is what your subjects are living upon."

And yet these half-starved peasants of the pre-revolutionary period gave an increase of population to their country a good deal more than double that of their well-to-do descendants: they formed the armies of the Great Condé and Turenne, and made their king, Louis XIV., the leading sovereign in Europe. We, with our sturdy soldiers, reared on beef and beer, scored

some victories over them at Blenheim, Ramilies, Oudenarde, Malplaquet, and Dettingen, but it took us all we knew to do it; and the French have a fair set-off in Steenkirk, Landen (the bloodiest battle of the seventeenth century), Almanza, Fontenoy, and Hastenbeck. The starveling children of these half-starved peasants carried the French colours into every capital of continental Europe, though at a cost of French lives in their prime which must have told on the population. The ten years of revolutionary wars destroyed one million; those of the empire a million and a half, mostly of men between eighteen and forty-five. But in spite of this drain, the increase of population up to 1869 was more in accordance with the old standard than it has been since. The second empire added its tale of loss in the wars of the Crimea, Italy, Mexico, and in that most grievous of all, the one with Germany; and though there is now no actual death-loss through a war, the population must suffer from having continually 500,000 men in the prime of life learning to wheel to right and left, to cover 29½ inches in each step, to do a hundred and fifteen steps per minute, and to keep up to a pace of three and a quarter miles per hour in full marching order, instead of tilling the plot of land, working for weekly wages, and "cultivating those home affections which are the true happiness of a country."

Industry and thrift and prudence are admirable; but in the French they become almost vices when they are shown in excess as among the peasant proprietors.

The ordinary wages-receiving workman is much like his fellows in other countries; his family is larger than that of the small landowner, and he does not stint himself in his nourishment as the peasant proprietor does, who will go from week to week with barely tasting wine and not at all animal food. As an instance, on the farm of Petit Bourg, in Seine et Oise, where also there is a manufactory of agricultural machinery, M. Decauville bakes bread for the workmen, and lays in a stock of wine, which he sells at cost price; and here many of the labourers eat four pounds of bread and drink five pints of wine a day, besides some meat and cheese. The opinions of thoughtful men seem to tend towards the wish to introduce into France some of that improvidence which allows English people to bring large families into the world without first securing the means of keeping them, and which has peopled the continent of North America and the Australian colonies with an English-speaking race; besides providing so great a supply of labourers at home that nothing that wants doing really is left undone for want of hands to do it.

It is quite common to read in French papers that France is in a state of decay; that nations which spread their influence by emigration will rule the world; that no poverty is so ruinous to a country as a poverty of subjects, &c., &c. M. Leroy-Beaulieu says, "Emigration is a force which enriches a country, because the emigrants are the best missionaries of trade; the world is becoming Anglo-Saxon, or Russian (Slavic), and that is what causes us anxiety."

Poor Relief.

There is no poor law in France; no one has a legal right to relief; the admission of such a right would be a sanction of communistic principles, which French statesmen have always resisted; but, nevertheless, any one wanting help knows exactly where to go and state his needs, and the machinery for inquiring into them and reporting upon them is perfect. Mr. A. Doyle says, "The reports are models of what such reports ought to be, and the applications for relief are considered by the committee as in an English union." The difference, therefore, between having a right to relief and having none would seem very unimportant; but the result to the applicant is more in accordance with the feeling that there ought to be no relief where there has been improvidence, rather than that there is a right to it when destitute, no matter what may have been the antecedents of the pauper, which is the basis of the English law. The practice in France is all that could be desired to induce people to be provident, for after all these elaborate and perfect inquiries, the result is that "if the average amount distributed were never given at all, the poor would be no worse off, and the pauper would not suffer any more if this ridiculous assistance, distributed so uniformly, and with such perfect intelligence, were to cease altogether. . . During the sixty years of this administration not one single person has been raised from misery by the help of this system of charity. On the contrary, it perpetuates pauperism, and there are now on the list of recipients of relief people whose grandfathers received it in 1802,

and the fathers in 1830" (De Watteville). Mr. Doyle calls this system "just enough to pauperise, but not enough to relieve; and M. Laurent, "Not enough to bring even a passing relief to the misery of the poor." This "most perfect system of charity organisation of which we have any record," is not in operation in the country districts to nearly the same extent as it is in towns, and to this greater facility for obtaining assistance in sickness or trouble many people attribute in some degree the attraction the towns present to the rural workmen. It must, most probably, be allowed that the miserable mockery of relief quoted above must refer to the public relief, and that where severe want is evident, the visitors can call in the aid of private charity successfully. There is now a movement in the country districts to obtain this organisation for them, so that this particular temptation to leave the country for the town may be removed. The resolutions proposed, and in many cases adopted, go to recommend a wide and ample distribution of what really is out-door relief—just at the moment when opinion in England is swaying towards the absolute refusal of such relief in almost every case. It is true the two countries differ in this, that here we can offer the house, which cannot be done in France; but so much stress is laid in the latter country upon keeping up the feeling of home, that the introduction of a workhouse test would be impossible; and our poor law is called a "deplorable legislative measure."

The resolutions proposed and adopted by the Council

of the Societé des Agriculteurs at various times during the years 1873, 1874, and 1875, are to the effect that assistance to the aged, infirm, and siek should be in their own homes; that women at child-birth should be helped; that families of the poor where the children are numerous should be assisted out of the local rates, and that relief generally should be extended. Other propositions, tending still more to discourage thrift and prudence, have been proposed, discussed, and adjourned, but the above were carried; as yet, however, they have not been practically applied, the cost preventing their present adoption: the principle is not objected to.

Work-people. If the supply of people is short in quantity, is the loss made up in quality? As regards artisans and town workmen of all kinds, the answer must certainly be that it is. Nowhere is work turned out better than in France, more perfectly done, less scamped. The appreciation of the designs of trade artists by the French working-man puts French manufactures at the head of the productions of the world; nor are strikes or difficulties between masters and men so common as in England.

Peasants. As regards farm-work—if in this be included much that we should consider as garden-work—the same must be said. The cultivation of fruit and fruit-trees, of vegetables for immediate use and for preserving, of all those varied productions from the land which the climate of France permits, but of which we know little in England, is carried on with an intelligence which

puts those who labour at it on an equality with their fellow-countrymen of the towns. They do not spare the labour, and it is here that the bad points of the system show themselves. The peasant owners, examples of industry and thrift carried to excess, slave to get as much out of the land as it can be made to yield, starving themselves and their families to add something to their hoard; their wives becoming prematurely old from field-labour, and bent from carrying heavy loads of fodder to the cow at home, content if at the year's end the tale of silver pieces be increased; doing their share towards making France the richest country in the world, but at a sacrifice of all that makes life worth living for; admirable for their hourly self-denial, but exciting a wish that they would have a little less thought about the future, a little more trust in its providing for its own wants, a little more of the feeling that enough for the day is the evil thereof, of which an Englishman has too much; and that one could see their homes more enlivened by the cries and prattle of children, and the wife rather worried with looking after them than worn with toiling "through shine and rain, through heat and snow;" and the children with more light and life, more of the wilfulness and what our people call the "'owdaciousness" of childhood.

The correspondent of an English newspaper thus writes of a country market-town in Seine et Oise: "There were freeholders in that St. Remy hostelry whose fee-simple properties and toil combined bring

them incomes varying from one to three hundred pounds a year; but in point of intellect and manly virtue, the poorest Scotch ditcher is above the whole of them. Many of these rich hinds had to count their gains on their fingers or on tallies. The French peasant has but one idea in his narrow crushed-down forehead, and that idea is money."

On the other hand, Mr. Hamerton says, "The ignorance of French peasantry is difficult to believe when you do not know them, and still more when you know them well, because their intelligence and tact seem incompatible with ignorance. They are at the same time full of intelligence and inconceivably ignorant. Their manners are excellent, they have delicate preceptions, they have tact, they have a certain refinement which a brutalised peasantry could not possibly have."

If any one wants to know a good deal about French rural life, he cannot do better than read Hamerton's "Round my House."

Fairs. The French peasants may be ignorant, and they are specially illiterate; newspapers are unknown among them, but they have their sources of information from frequently meeting at markets and fairs and hearing by word of mouth what is going on. These markets and fairs have so multiplied that steps will probably be taken to reduce them; the Minister of Agriculture has called on the Préfets (1877) to furnish a list of the fairs in each department, and a statement of the right on which they are held. There are

27,000 fairs in France, more than seventy-five a day. Permission to hold a fair has been too easily granted; owners are asked to send cattle, even if not for sale, and no one gains but the wine-shop keepers. The number is a hindrance to business rather than a gain: as they are so numerous each has but a small lot of cattle or corn offering, and large buyers do not care to come long distances only to have small transactions. The poor department of Morbihan, with 500,000 inhabitants, has 750 fairs in a year.

Special Labour.

The peasants in certain districts have a special aptitude for certain classes of work which is difficult to account for. Walloons from the borders of France and Belgium are the most apt at pulling down houses; builders and stone-masons come from Marche and Limousin; scavengers and chimney-sweeps from Auvergne; market-gardeners from Nivernais and Le Morvan; and, it is said, cab-drivers from the department of the Aveyron.

The French peasant is not a frequent correspondent, but he is well served by the post-office; there are 19,000 rural postmen who deliver letters regularly in every commune of France. They are paid at the rate of five-eighths of a penny for every quarter of an hour of time, or for every five furlongs. Among the snows of the Jura they perform their journeys in snow-shoes; in the marshes of La Vendée they clear the drains with leaping-poles; on the sandy tracts of the Landes they walk on stilts; on the coasts of Brittany

they must trust to small boats—and this for wages varying from £5 to £30 per annum.

Education. More than one-third of the adult population of France can neither read nor write, the proportion being $33\frac{37}{100}$ per cent. for the ages above twenty; between six years and twenty the proportion is $23\frac{89}{100}$ per cent.

The degree of instruction varies in different parts of the country. In the half-dozen mountainous departments of the Jura and the Vosges ninety-two out of every hundred above the age of infancy can read and write; while in the centre and in Brittany only forty-four in the hundred; and in one department, Haute Vienne, only thirty-nine have been so far instructed.

The comparison of those between the ages of six and twenty with those above twenty who can neither read nor write shows an advance, which will be not only maintained, but is in process of rapid increase, assisted by the regulation which adds a year's service in the army to the time of those who cannot reach this standard.

The Minister of Public Instruction in a speech at Toulouse, in October, 1876, said that he hoped primary instruction would be within the reach of all children within three years. He has asked (1877) for a grant of £5,000,000, to be employed during the next five years in the building of schools. The sum annually allotted up to 1872 was only £40,000; it has been raised to £200,000, but this is not found sufficient.

17,000 new schools are required where there are no funds available, and if they are to be built the State must build them.

In Paris seventy-five schools were built between the years 1860 and 1870, giving accommodation for 1,500 boys, 1,600 girls, and 8,600 infants. From June, 1871, to July, 1874, forty-eight new schools were opened, principally in the suburbs, twenty for boys, eighteen for girls, and ten for infants; several more are in the course of erection. The total of the new schools opened in and around Paris from 1871 to 1876 can receive 28,760 scholars.

A low average of education is quite compatible with a very high standard in some parts of the population. The peasants and country labourers are painfully illiterate, the inhabitants of towns are highly educated; and every town of any size in France has facilities for education, of which the inhabitants take full advantage; and in the country schools instruction relating to farm-work, the management of animals, the cultivation of a garden, and the proper treatment of fruit-trees, enters largely into the ordinary teaching.

In the horticultural portion of the show at Chartres, in June, 1877, were exhibited the copy-books of children from some of the schools in the department of Eure et Loir. They contained descriptions of the various methods of budding and grafting fruit-trees, of the various kinds of wheat grown in the district, the insects noxious and otherwise, the different grasses, &c., the whole illustrated by the drawings of the pupils,

very clearly written and drawn. The pupils varied in age between ten and thirteen, and if these books are anything like a fair representation of the state of rural education in France, it must be far above that of England, and it was not a few books that were exhibited, but a large table was covered with them. At the agricultural meeting at Paris in February, 1877, the plan of a parish in Burgundy was exhibited drawn up by the schoolmaster, in which the nature of the soil on the little plot round the household of each pupil was explained, and the pupils were taught the most suitable methods of cultivating that particular patch of ground.

The most complete account we have of this kind of education is given by the Vicomte Charles d'Hédouville, who describes the system pursued in the canton of St. Dizier, in the department of the Haute Marne, and which has been at work since 1873. The Conseil General de la Haute Marne—what we should call the County Board—published, in 1872, an elementary book on agriculture, called "An Agricultural Catechism, suitable for the schools in the Haute Marne." After the holidays in the month of October, the educational committee informs the schoolmasters what lessons in the catechism are to be prepared during the winter for examination in the spring: generally ten are selected, forming about fifty pages of printed matter. These lessons are to be prepared by the pupils of the two upper forms: writing the lessons from dictation, and working out the arithmetical problems connected with the lessons are done during the ordinary school hours; the special study

of the agricultural portion of the work is taken out of the ordinary school-hours, or on the half-holidays. It is not found that this extra work interferes with the ordinary school-tasks, as the pupils of the schools in St. Dizier satisfy the inspectors fully as well as do those of the schools where the agricultural education is not attended to so much, or not at all.

The degree of success attending this teaching varies of course with the skill and knowledge of the masters. Some teach the boys to distinguish between the useful and the useless plants in the neighbourhood; they form collections of those cultivated, the grasses most serviceable, the weeds, the medicinal herbs, and those that are poisonous; these are collected in bunches, duly labelled, and kept in a case, and are renewed yearly as a succession of new pupils follows those who leave. Some have specimens of the various soils and subsoils; seeds of the crops; hemp and flax in their different stages of growth and preparation; sugar-beet preserved in spirit, with its different stages of progress, from the raw root to its outcome in sugar, &c., &c. Few villages have elaborated a system so perfect as that of St. Dizier, but most through France are working in the same direction, and as two or three years make all the difference in the education of children, that very short period of time may wholly change the educational condition of the French peasantry.

When the examinations are completed rewards are given, both to the masters who have been most successful and to the pupils who have passed the best. In the latter case, the reward is a savings-bank book, with ten

francs to the credit of the boy. They began at St. Dizier by promising two prizes to the masters and ten to the boys, but the zeal of the masters and the success of the boys have been so great, that this spring (1877) they have given five prizes to masters and sixteen to the boys.

Each department in France has a separate work published for its special use; all these books contain a general statement of the geography of France, and then the more complete geography, and a short history of the department. The geography describes the formation and nature of the soil, the watercourses, the climate, the population, &c.; and has engravings of the chief objects of interest.

Climate. The climate of France is too large a subject to be treated of in a few lines; it varies from the perpetual summer of the shores of the Mediterranean to the winter of many months in the Jura; but there are some points which may be noticed, having direct reference to the districts growing corn and rearing cattle. In the west frosts are light—indeed, in some parts unknown: on the north of Brittany the winters are as mild as those in Italy, but rougher and more damp. All along the north fruits ripen in a way we should hardly expect to see, except in a more southern latitude. Paris receives its supply of melons as freely from Normandy as from the south. With the exception of Flanders, Normandy, and Brittany, the air is very much drier than in England, more light, pure, and elastic, and rain dries up very quickly.

Farther inland, in the centre, frosts are very sharp, and come both later in the spring, and reappear earlier in the autumn, than in the northern provinces, and when they do come in the spring, they do immense damage. The Government returns for 1872 estimate the loss by frosts at £2,000,000, and this is probably not above the annual average. The chief suffering falls upon the central districts; more than half the loss, indeed, is set down for the three departments of the Cher, Loiret, and Haute Loire, and one-fourth to frosts occurring in June. In June, 1873, the walnuts all through central France were black from a frost in May. Farmers have a not unnatural dread of the effects of frosts on spring corn, and dare not sow their barley before April, though, probably, if they would put it in in March, it might be forward enough by May not to suffer from these frosts. Storms of hail during the summer months are more frequent and much more severe in France than in England: the estimated damage from them in the return of 1872 is put at nearly £3,000,000. These hailstorms occur during the four summer months: crops are completely thrashed out by them, and sometimes absolutely forced into the ground, as though a troop of cavalry had been over them, and young stock are killed by them. It is again the centre that suffers most, very nearly £2,000,000 out of the three being put down to the central departments: the north feels them very little. Rain falls in torrents in France, in a way in which we have no example in England, and this in almost every summer, and not in one part of France only, but very generally

through the country. The amount of rain, as taken by a gauge, is a very unsafe guide as to the moisture of a country. Many parts of France have much more rain than Normandy, and yet suffer from drought, while the pastures of Normandy are green, and growing all the year round.

Corn. The present extent of the territory of France is 13,2000,000 acres. More than one-fourth of this area, 37,500,000 acres, is sown with corn, of one sort or another, every year

The proportion in 1872 was:—

Wheat and Rye...	23,500,000, all available for human food,		23,500,000
Barley...	2,800,000, $\frac{2}{5}$ used	ditto	1,000,000
Buckwheat... ...	1,700,000, $\frac{2}{3}$ ditto	ditto	1,200,000
Maize and Millet	1,600,000, $\frac{1}{2}$ ditto	ditto	800,000
Oats	7,900,000, none		
	37,500,000		26,500,000

Thus one-fifth of the whole soil is devoted to the growth of corn for human food; besides which there are 800,000 acres growing beans, peas, and pulse, largely used, probably to the extent of two-thirds, for the same purpose; and 2,900,000 acres of potatoes, half of which are so employed, and the yield of more than 1,000,000 acres of chestnuts, giving 22,000,000 bushels, of which 15,000,000 are used as a substitute for corn-food over a large part of the country. Thus nearly 29,000,000 acres are devoted to supplying corn-food or its substitutes, supplemented by 15,000,000 bushels of chestnuts.

The comparison of this with the corn-growth of England is noteworthy. The area of Great Britain and Ireland is 77,800,000 acres, and the land sown with corn of all kinds is 11,000,000, as against 37,000,000 acres in France. Wheat and rye, the only corn-crops eaten to any extent in Great Britain, occupy 3,600,000 acres, as against 26,500,000 of edible corn-crops in France. Our people eat very few beans and peas, and make no bread or porridge from chestnut flour; the French certainly eat half the produce of their 2,900,000 acres of potatoes, and we do not eat all the produce of our 1,400,000.

This supply of corn-food, or its substitutes, suffices for the consumption of the French. It is true that the importations exceed the exportations; as in the six years, 1869 to 1874, the first reached £23,500,000, and the second only £14,000,000, a difference of £9,500,000, equal to £1,500,000 a year; but the use of wheat for manufacturing purposes amounts to at least double that sum, viz., £3,000,000; it is even estimated by some people to reach to £5,000,000 yearly. Of the £23,500,000 imported in these six years, more than £14,000,000 were paid in one year to meet the deficiency of the bad crop of 1871. The form which the importations and exportations take is favourable to the French; they import raw corn from the Black Sea, and they export very fine flour, thus gaining the profit on the manufacture. The French grow amply enough corn for their consumption.

Wheat. The last returns published, those of 1873, give the acreage under wheat as 17,500,000 acres, and the produce 2½ quarters per acre; but this is above the average, the crop of 1872 having been exceptionally good. The ordinary average is two quarters, or two quarters and two bushels, as against the English average of three-and-a-half quarters, or three quarters two bushels. North of the Loire and in Vendée, wherever wheat is grown for the market, and not for home use, the largest crops are obtained; and in Flanders from five up to seven quarters are by no means uncommon, five quarters being very general. In the south the yield falls as low as nine bushels, even in some places six bushels. It is to be presumed that farmers have found their account in working for so miserable a result; but the charges on land are now so increased, and labour has become so costly, that, in face of the supply of wheat from America, it is asserted that where two quarters as a minimum cannot be grown, there wheat must be abandoned.

The land under wheat has continuously increased for the last fifty years; in 1820 it was under 12,000,000 acres, with an average yield of only eleven bushels to the acre; it is now 17,500,000, with an average of over sixteen bushels.

Rye. Rye is diminishing; it was grown on 9,000,000 acres in 1840, and on only 6,000,000 in 1872, and 1,000,000 out of the six was sown with a mixture of wheat and rye, which produces a bigger crop than either grain

sown separately on the same ground would; and, curiously enough, the rye ripens later and the wheat earlier together than the same crops do separately in adjoining fields. The yield from the 6,000,000 equals that of the 9,000,000 of 1840. Much of the land now sown with rye would carry wheat quite well if better farmed; but the wheat, with the extra cost of cultivation, would not pay as well as the rye; it is grown on many highly-managed farms for the sake of the straw, which is useful in many ways; from it the binders of the sheaves are always made.

Barley.

The area under barley has decreased 300,000 acres between 1840 and 1872, and it will probably decrease still more as it becomes less and less used as an article of food; the produce has greatly increased, and the quality has very greatly improved. In 1840 the yield per acre was fifteen bushels, in 1872 it was twenty-one bushels; the price in 1840 was 20s. per quarter, in 1872 it was 27s., and both the yield per acre and the money-value have increased since 1872; the gross money-value in 1840 was £5,500,000, it is now nearly £10,000,000. There is now a rapid and yearly increasing improvement in the quality of the French barley, the farmers aiming at a produce fit to compete with that grown in England, and they are abundantly successful in their aim. Until recently French barley was fit only for grinding and feeding purposes; it has increased quite two pounds per bushel in weight, and is superior to the English barley in the fineness of its skin and the paleness of its colour.

Oats. The area sown with oats has not increased, but they, like all other corn, show a large increase in yield; from eighteen bushels to the acre in 1840, it has increased to twenty-seven bushels.

The persistence of the small French farmers in growing corn with such a poor return can, perhaps, be accounted for by their desire to produce all that they want on their own land, without putting their hands in their pockets for money. On the mountains of the Jura, and on the uplands of central France, they grow wheat, and get back nine bushels from a sowing of three bushels, when the same land would produce good herbage, and enable them to keep cows whose milk would buy them not only all the corn they want in the markets of the plain, but three times as much as they grow now. But then they would have to part with money, after receiving a great deal more, no doubt; but once money in their purses, it pains them to see it go out. A writer says of the peasants: "If I give them a five-franc piece, and ask them for two back, they think I am robbing them."

Kitchen Gardens. The growth of kitchen-garden and fruit produce in France is so large that it quite ceases to be in the category of small undertakings; the last returns, 1873, show that a million and a quarter of acres grow green vegetables. The grapes of Thomery, the broccoli of Roscoff, the asparagus of Argenteuil, the green fruits of Touraine, the melons of Vaucluse, where 8,000 grow on an acre, are found in their season in every capital of Europe, and there is hardly a grocer's shop in any town

of Europe but has its stock of French dried and preserved fruits and vegetables. It is from France that our markets are supplied with asparagus in February, and with those delicate lettuces during the winter, at the moderate price of 1s. 6d. a dozen retail, which by their clever packing and prompt delivery are as crisp and fresh as though just cut from the garden. The early peas and French beans come from Algiers, but the broccoli is from Brittany, and the asparagus, lettuces, and carrots from the immediate neighbourhood of Paris —indeed, to a large extent from gardens within its walls. Over 6,000 persons are here engaged in the business, the half of whom are the masters and their wives, and 1,200 are boys and girls. The rent paid for the land is from £36 to £48 per acre according to situation, but to command this rent the garden must be provided with a well, with pumping machinery and tanks.

An ordinary-sized garden is about an acre and a half, the largest being two acres and a half, and the plant to carry on a business of the smallest size costs nearly £500; there must be 133 glasses for striking cuttings, 400 glazed frames, 2,500 large bell-glasses, 680 straw mats, 400 blocks for the frames and glasses, besides the spades and hoes and rakes, barrows and baskets for taking the produce to market; and there must be a horse and cart, with harness for the well. The value of the plant in and round Paris is estimated at £300,000, and the cost of repair and maintenance in a small garden will be from £70 to £80 each year. The manure costs 2d. for each bell-glass, and 2s. 8d. for each frame

yearly; the total cost for manure is estimated at over £50,000.

The regular workmen earn an average wage in money of 1s. 7d. per day, winter and summer, and are, besides, boarded and lodged; their cost is reckoned at 3s. per day. Extra men are paid at the rate of 3½d. per hour; women, 2½d. Most of these men come from the Nivernais and Burgundy; they are not tempted to the business by the amount of earnings, which are by no means high for France, but they accept them in order to learn a business in which they hope some day to establish themselves. The work is very hard; the master rises between one and two on most nights of the year, calls up the household, starts the cart off to market in charge of the wife, who manages all the sales. He then takes a little rest, but by four or five is at work, and so keeps, with intervals for meals, until eight or nine in summer, and until dusk in winter. The hardest work is watering in dry weather; two men are then constantly employed, from eleven in the morning until eight at night, with an interval of an hour and a half. Each man makes 150 journeys in the hour; that is 1,125 in the seven and a half hours. He carries two watering-pots, weighing when full close upon half a hundredweight.

Something of this sort is going on near every large town and many small ones. At Amiens, vegetables have been grown in the marshy and boggy land from before the thirteenth century, while we in England had not a cabbage for hundreds of years later. This land

sells at from £200 to £240 per acre; it is chiefly rented at from £9 to £12 per acre. It is laid out in strips, divided by small canals about two yards wide, through which flow the waters of the Somme; these strips may be any length, but are not more than two yards wide, so that water may be thrown over them with a scoop. The refuse of the vegetables is thrown into the canals, which are cleaned out every year in March. There are about 250 acres here, under this cultivation; and a note furnished by the Mayor of Amiens shows the yearly produce of these 250 acres to be nearly £33,000, about £130 per acre. The cabbages often weigh thirty, forty, and fifty pounds; the beet twenty to twenty-five pounds; the large black radishes twelve to twenty pounds, and the turnips twelve to fifteen pounds. This business would greatly increase if the cost of transport could be reduced, for the capacity of France, to grow vegetables is unlimited. The Western Railway takes perishable articles to Honfleur and Havre cheaply, and a large business is done; and the Rhenish railways take similar goods by express trains at the same tariff as by goods trains. The French have generally lowered their scale, but it is still too high, and the reduction is only allowed on quantities of half a ton; this represents twenty-five to thirty dozen cauliflowers (one dozen hampers), or thirty baskets of lettuces, of one hundred each. Few dealers can send so many in one consignment. A reduction of 50 per cent. in the charge for carriage and for quantities of one hundredweight, with the return of empties by goods train, would enable French vege-

tables to be sold in every town from the Rhine to the Baltic. Even as it is, the trade is by no means unimportant; but as a dozen large cauliflowers, weighing twenty-two pounds, worth 4s. to 6s. at Paris, cost 10s. to 11s. 6d. at Berlin, 13s. to 15s. at Konigsberg, and 17s. to 18s. 6d. at St. Petersburg, the consumption cannot increase. There is very unnecessary delay also, and the blame is with the French. Cologne to Berlin is farther than from Paris to Cologne, and yet the journey is done in two days, while it takes five from Paris to Cologne; goods go to Hamburg quicker by steam from Havre than by rail; bills drawn against consignments at six weeks' date have often been presented for payment the week following the arrival of the goods; and it takes less time to cross the ocean to America than to go across France and Germany. A ten days' journey from Brittany to Cologne makes the trade impossible, and Italy is competing successfully with France for the German business.

Flowers. Flowers, less than vegetables, are farm produce; but a cultivation which occupies 1,500 people round Paris only, has a certain importance. It is reckoned that 6,000,000 bouquets of violets are sold in this capital yearly for the sum of £25,000.

Implements. "In a climate in which the sun has power to burn up weeds with only a scratching of the soil, and in a territory where harsh, obstinate, churlish clays are almost unknown, perfection of implements, and great

powers of tillage, are not so necessary as in the less favourable climate and soil of England."—*Arthur Young.*

Not being "so necessary," improved implements have made very slow progress in France; and it is only during the last twenty-five years that they can be said to have become at all general. The first efforts were directed to those instruments used in the actual cultivation of the land, such as ploughs, harrows, rollers, &c.; the next to those used in preparing the produce for market, or utilising it—as thrashing, winnowing, and screening machines, chaff and root cutters, &c.; and lastly, those which assisted labour — as haymaking, drilling, mowing, and reaping-machines.

The use of these improved implements was for a long time limited to ploughs and such-like, but has now very generally extended to thrashing and screening machines; and of all these, the French makers supply the largest proportion, both of those worked by steam and those worked by horse-power. Mowers, reapers, and drills are still mostly of English or American make, though the French are entering the field against us, with all the advantage of starting with our models before them. The English and Americans at present hold their own, because they do so much of their work by machinery, and on a large scale; and this counterbalances the extra cost of import duty and carriage, which in the case of a drill of Smyth's amounts to £3, and in that of a reaping-machine to about £5 5s.

The cost of the new implements was a great hindrance to their spread, as French farmers do not

put out money readily. "Buy one of Smyth's drills," said an agent to a farmer. "No," said the farmer; "it costs so much money." "It shall cost you nothing," said the agent; "only give me the value of the seed it will save you in three years." "Why, at that rate I should be paying you more than you ask me;" and so the negotiation came to nothing. This actually occurred; but a sale was at last concluded, after the farmer had lost a couple of years in hesitation. The Minister of Agriculture stated recently (1876) that the general use of drills would save £600,000 per annum to the country.

Mowing and reaping machines are being used, because labour is so much dearer than it was. A man mowing corn gets 30s. a week, besides his food and two bottles of wine a day, and he will mow only 1¼ acres in a day, often not doing his work well. There is plenty of evidence that the use of these machines is extending; it was reckoned that in 1874 there were 3,000 in the eleven departments of the north-east of France alone. In all England there are 80,000, and the harvest of the whole kingdom could be got down with them in twelve days. France is far from this at present, but, judging from the long lists of advertisements in the farming papers, and the numbers shown at all the exhibitions, she is progressing fast towards it. The number of machines and implements exhibited is double what it was a very few years ago. At Arras, in 1868, there were 600; in 1876, 1,400, worth £20,000; in July, 1876, 1,250 were shown at Rheims; the number

at Quimper, in South Brittany, was 290 in 1868, and 667 in 1876. 1,741 were at the Paris show in 1877, of which plenty were thrashing-machines, but none either mowers or reapers. At Moulins, in Bourbonnais, in May, 1877, there were 1,000 entries from 100 exhibitors, almost all French; indeed, the portable engines were wholly French, and what is more, they were all marked sold. At Chartres, in June, 1877, there were over 600 machines and implements for out-door farm-work, few of which were not of French manufacture.

The French-made implements are not so well finished as the English and American, except, perhaps, the ploughs, but they are cheaper. The English and American take the prizes at the shows, but the local makers are getting most of the orders. Their productions answer the farmers' purpose, and in principle they are "adapted" from the models of their competitors, and they have this advantage, that being made on the spot (for almost every town has its implement manufactory, and the number of small makers is increasing year by year), any repairs can be readily undertaken by the maker of the machine himself. M. Drouyn de l'Huys has invented a phrase which is continually repeated—"Battles are now won by artillery; implements are the artillery of agriculture;" and every influence is brought to bear upon the subject of their increase and improvement. They are bought by committees, and sold by auction at a loss to members of a society; and in July, 1876, the Minister of Agriculture sent a circular through the country, advising the purchase by the county boards

in the rural districts of improved implements, which should be sold even at a loss, or should be hired out to small farmers. It was shown that a reaping-machine with a driver could be kept at the expense of the board, which would repay itself by the charge for hiring. This suggestion has probably been adopted in more places than one, but it certainly has in the small village of Vezet, in the Haute Sâone, where the board has purchased (June, 1877) one of Samuelson's reaping-machines. There are but 400 inhabitants in the village, and the properties are very small; the peasant owners have engaged to have their harvesting done by the machine at 2s. 8d. per acre. The corn can be cut at a saving of three-fourths of the present price. £800 has been voted by the board; and should the machine bought answer expectations, half a dozen more will be purchased, and other machines added, which may be of general service.

Hand thrashing-machines are exhibited at the shows, and some are bought; they are ingenious and work well enough, and are cheap, but the labour is too excessive. Moderate machines of this class would find a good sale, to be moved by horse-power; the English are too costly. One of our large English firms has taken a steam thrashing-machine from show to show for the last four years, without getting an order for a single one.

Enclosures. "There is scarcely a circumstance concerning this great kingdom which is so grossly misrepresented, both

in common books and in common conversation, as the subject of enclosures. The idle loungers that write the guides and journeys to Paris and Rome would make their readers believe that if you turn a horse loose at Calais he may run to Bayonne without an enclosure to stop him. France is certainly much less enclosed than England; but the travellers who take the common route only from Calais to Paris, Dijon, Lyons, and Chambery, can have no more idea of the enclosures in that kingdom than if they had stayed at home in Portman and Grosvenor Squares. The principal districts of enclosure which I viewed are all Brittany, the western part of Normandy with the northern part to the Seine, most of Anjou and Maine as far as near Alençon. To the south of the Loire an immense range of country is enclosed; Bas Poitou, Touraine, Sologne, Berri, Limousin, the Bourbonnais, and much of the Nivernais; and from Mont Cenis, in Burgundy, to St. Ponçin, in Auvergne, all is enclosed. There is some open country in the Angoumois, and the eastern part of Poitou, but more is enclosed. Quercy is partly so; but the whole district of the Pyrenees, from Perpignan to Bayonne, extending to Auch and almost to Toulouse, is all (waste excepted) thickly enclosed. This contiguous mass of country comprehends not less than 11,000 square leagues out of the 26,000 contained in the whole kingdom, and if to this we add the considerable districts in other parts of France which are enclosed, they will, beyond a doubt, raise the total to a full half of the kingdom." Since Young's time waste lands

have been largely brought into cultivation; that open land in Anjou and Maine, over which he could ride for days, is now all cultivated and all enclosed, as are the newly-made pastures in Nivernais. The Pays de Caux is enclosed much as is the wold country of Lincolnshire, with small straight quickset hedges, and the discussions about the best methods of planting and keeping in order the live fences are as general as they are in England. The proportion of cultivated land enclosed in France is probably as large as it is in Great Britain. 10,000,000 acres have probably been enclosed since Young's time.

Horses. The number of horses in France may be taken at 3,000,000, of which it is computed that 1,080,000 are under four years old, 365,000 are fifteen years old and upwards, 352,000 are entire horses, 600,000 are brood mares, and 303,000 inefficient from accident or disease, leaving 300,000 from four to fourteen years old and sound, of which 81,000 are in the army.

Of these about 3,000,000 horses, 1,800,000 are heavy draught horses, 600,000 to 700,000 are light, and from 400,000 to 500,000 medium. It is from these last two classes only that horses for the army can be taken. The army used to require 70,000 horses; but to fill up the regiments, as re-organised after the war, she has called for 90,000. The estimates of the Minister of War for 1878 reach to 110,000 for the army, and 13,000 for the gendarmes; of this number the Algerian regiments take 16,000.

The price (for 1878) is put at £46 for heavy cavalry horses, £40 for dragoons, and £36 for the light cavalry, which prices are quite £4 per horse above previous values. Officers' horses are £10 higher for each sort. The price of troopers' horses for Algerian regiments is £28, for officers £32.

In case of war from 250,000 to 260,000 additional would be wanted, of which 176,000 would be called for at once—viz., 98,000 for heavy draught, and 78,000 for the saddle and artillery. To supply this want there are only 219,000 of all sorts of a serviceable age and sound.

Registration.

In order to render all horses in the country promptly available, a decree was adopted by the National Assembly on August 1st, 1874, which orders that at a date to be fixed in each year, a commission named by the general commanding each military division through France shall visit every commune, and in the presence of the mayor shall proceed to the examination and classification of all the horses and mules in the commune of the age of six years old and upwards, with the exception of those already in the public service. For 1877 the date fixed was from the 15th of May to the 15th of June. A list of the horses so examined, with the names and residences of the owners, is sent to the recruiting office of the district, and a copy of the list is left with the mayors. Owners of horses not presenting them at the dates fixed are liable to a penalty varying from £2 to £40. The horses are thus classified:—1st, those of 15 hands 1 inch and over, for heavy cavalry;

2nd, those from 14·3 to 15·1 for dragoons; 3rd, from 14·2 to 14·3 for hussars; 4th, heavy horses from 14·2 to 15·1 for artillery drivers; 5th, lighter ones of the same height for the traces; 6th, heavy horses of 14·2 and under for baggage wagons; 7th, mules of 14·1 and under, for any purpose to which they can be applied. Entire horses are only classed in the 6th category. This registration is a great nuisance; it sometimes lasts five days; the men may have to come five or ten miles and bring half a dozen horses with them, when they are wanted at home. The examination only lasts a few minutes, but the delay is a grievance. The brood mares are very irregularly presented.

"On an order to mobilise being issued, the commission meets at the appointed spot. An officer from each regiment requiring horses attends, as do also a certain number of men belonging to the cavalry of the Territorial army. The horses are all brought in at a certain hour, and distributed as required and as prearranged. Each officer then goes off with his contingent, the Territorial cavalrymen taking charge of the horses on the road. Thus one of the great difficulties of mobilisation is completely overcome. The arrangements are now so perfect that in the course of the six days allowed for mobilisation all corps would be supplied with what they require without any fuss, for every detail has been carefully worked out." (*Times*, September 15, 1876.) Compensation is settled by a committee of proprietors.

These horses of various breeds through France are

reared to meet regular and certain markets, and as long as these markets continue open the supply is not likely to fall off; indeed, at the present rate of profit it is almost certain to increase, but this does not satisfy the great and pressing want of the French army. Horses for heavy draught, as forage and baggage wagons, can always be had, and also lighter horses for artillery, but there is an absolute and serious deficiency in the supply for the cavalry of all arms. This deficiency has been partly met by the use of Algerian-bred horses, but the soldiers don't like them, and commanders of regiments pray to be delivered from them. Useful and suitable in Africa, they are troublesome in France; quiet at pickets and docile in their native country, they become unmanageable on the different food and in the different climate of France. (*E. Gayot, late Director of the Haras du Pin and Pompadour.*)

Breeding.

There is no sale, or a sale so small that it need not be considered, for such horses as the army wants, outside the army. Formerly, in the absence of roads and public conveyances, riding was a necessity for numbers of people all over the country; but since the general improvement in the means of communication, no one rides in France except those few people who take an airing in the Bois de Boulogne at Paris. Country people prefer harnessing a good, stout, useful horse to a covered cart, such a one as they can make use of on the farm, and sell at a fair price when they want to part with him. No encouragement is therefore

wanted for the kind of horse for which there is so general a demand; but public provision must be made for the supply of that kind which only one buyer will purchase, and this provision is attempted by the Government of France, by the establishment of a breeding-stud, of depôts for sires, and by the payment of premiums, and the giving of prizes at horse-shows.

Studs. A law published on June 2, 1874, settles the administration of the studs thus:—"A superior council is established, consisting of twenty-four members named by the President of the Republic, who hold office for nine years, but which is renewable by thirds every three years; it is to meet at least twice in each year, to give advice upon the expenditure, on the rules that are to govern the management of the studs, on the regulations of the prizes, races, shows, &c.; to receive reports from public bodies about horses, petitions, &c.; and to report upon the same."

The working staff of the studs consists of one head Inspector-General, and one other Inspector for each of the six divisions into which the country is partitioned. There are twenty-two depôts for sires, some of the divisions having three, some four; one training-school for the education of officers and servants in all branches of the treatment of horses, with properly-qualified professors, and no officer is to receive an appointment at any of the studs unless he shall have gone through the course at the school, and have obtained a certificate of proficiency.

There is only one breeding-stud, and that is at Pompadour, in Limousin; it is, indeed, the re-establishment of one existing formerly, and is to contain sixty mares, and to be devoted exclusively to the production of Arab and Anglo-Arab horses, thoroughbreds.

At the passing of the above law, the Government sires numbered 1,060; they are to be increased at the rate of 200 a year until they reach 2,500; they will be chosen from breeds best adapted to those existing in the country where they are to stand, but will contain the greatest number of blood horses possible.

There has been rather a passion for the Anglo-Norman, in consequence of its success; but it would be a mistake to force its introduction everywhere, and towards the south the horses must be lighter, Arabs or Anglo-Arabs.

A sum of £27,000 is to be given annually in prizes; a yearly addition is to be made to this sum to the extent of £4,000, until the amount reaches £60,000 per annum; this is to be applied in premiums to sires, brood-mares, fillies, and colts, to be approved by the officers of the stud. £2,000 is to be specially allotted to Arabs and Anglo-Arabs.

The Government studs and depôts were first established in 1666, but were discontinued during the Revolutionary period. Napoleon set them up again in 1806, and as they have been maintained ever since, it must be supposed they have sufficiently answered the purpose intended, though complaints of their inefficiency have been heard. Breeders who

have relied upon finding a ready buyer of the produce from the stud sires, say that the army only accepts one-fifth, or even a good deal less; another fifth may find a profitable sale elsewhere, while more than half are left on hand, useless for farm work, or almost anything else. This complaint receives confirmation from the report made as to the number of mares sent to the State studs from 1862 to 1869, both inclusive, and of the purchases made for the army in the same years in the department of the Orne. The mares sent amounted to 15,289, the purchases to 3,852, and this amount was swelled by unusually heavy purchases in 1867, which were double those of ordinary years. In consequence, the number of mares sent fell from 3,213, the number in 1860, to 1,486 in 1871, and there was a gradual decrease from year to year; since 1871 there has been an increase, and in 1873 the number of mares sent reached 2,425. Orne is one of the largest breeding departments of France, the number of mares within its limits, in 1872, being 38,000.

The report from the department of the Manche, dated August, 1875, states that in the season of that year 83 sires belonging to the State, from fifteen stations, covered 6,206 mares; 67 sires certificated by Government covered 4,692 mares; and 6 authorised sires 367 mares; the number of mares in the Manche was 50,000 according to the census of 1872. The purchases for the army in this department in 1874 were 1,366, at a cost of £50,520, and from the 1st January, 1875, to date of report, 1,021, at a cost of £40,800; the horses bought

were five years old; the maximum price for light cavalry is £28, for draught horses £40; the price in the estimates for 1878 is higher. It is certain that the Government buys the best horses for the studs, and that they are superior to those in private hands, and that it charges a very low price for their use; it pushes towards the production of a good saddle-horse, providing, at the same time, the best sires for draught in the countries where heavy horses are bred. The army selects the best saddle-horses that are offered at the regulation price, but they are not all good enough, and they are not available until they are four or five years old. The farmers find it pays better to breed a useful, strong animal, which they can sell as soon as it is weaned. The purchasers of these sucklings work them at two years, so that there is little more than a year of the horse's life passed unprofitably. A saddle-horse earns nothing during the four years in which he is waiting for a market, and the "dead leaves" of the Government studs too often cost more than they realise.

Sires.

The sires used in France are about 12,000; of these at present the State furnishes 1,060; those intended for getting saddle-horses are selected after a public trial. The Arabs and thoroughbreds are tested at a gallop over a flat course, the half-breds over a two-and-a-half mile course at a trot in saddle or in harness, or at a gallop over a mile and a quarter with eight fences. At Caen, in the autumn of 1876, 600 horses went through the trials; they were rising four. The Government bought

156. The course was very heavy, but the distances were done at a good average speed.

Besides these 1,060, 700 other sires receive a certificate after examination by public officers; the remaining 10,300 are considerably inferior to the 1,760, but they satisfy the ordinary breeders, too readily indeed, for rather than take the trouble to send their mares a few miles, they content themselves with making use of the nearest sire that may be at hand. The Government sires are insufficient for the wants of the country; and at the meeting of the Société des Agriculteurs, at Paris, in February, 1877, the following resolution, proposed by the section having charge of the question of horse breeding, was, after discussion, adopted by the general assembly:—

"That a society of private individuals should be formed to provide sires in sufficient number to improve the breed of draught and saddle-horses wherever there may be a deficiency."

Prussia. Other countries adopt the system of State studs. Prussia, before the late war, had 2,100 brood mares and 1,823 sires in official hands. The smaller States of Germany more than 4,000 sires.

Austria. Austria proper, besides the great breeding establishments of Piber and Radautz, had in other localities 1,700 to 1,800 sires.

Hungary. Hungary swarms with Government horses. There

are four depôts for sires, of which there are 1,800—viz., Alba Regia, with 570 in four stations; Nagy Körös, with 870, in six stations; Szepsi St. György, with 238 in four stations; and Varasd, with 122 in two stations. During the season the sires visit 525 minor stations, and cover usually 63,000 mares. The charge is only from 2s. 6d. to 10s. for the greater number, and from 10s. to 30s. for the best mares and for thoroughbreds. There are besides four stud farms for breeding—viz., Kisber, Babolna, Fagaras, and Mezöhegyes. This last is said to occupy 45,000 acres, to have a stock of 2,000 horses of various ages, and to turn out 130 to 140 young sires yearly. There are also about forty breeding studs in Hungary belonging to large landowners, and the total number of horses in the country by the last census was 2,158,000, on an area of 5,600 square leagues, or 385 per square league, equal to 140 horses to every 1,000 of the population.

Russia has 15,500,000 horses, perhaps 20,000,000, and keeps not less than 6,000 sires in the State studs. Russia.

Governments may well be anxious about the supply of horses for the army, if the losses during the civil war in America are a true indication of the ordinary absorption in war time. Mr. Furner, head of the veterinary department, reported, on the 2nd of January, 1864, that "35,070 horses barely supplied the total quantity necessary to keep up a cavalry force of 14,000 men for a single year;" that is more than $2\frac{1}{2}$ horses per man per year. During this war the yearly

loss of horses was more than 2,000 above the yearly produce.

Military authorities seem to be agreed that two horses are required for every five men in the field; thus 20,000 horses would be wanted for the cavalry, artillery, and train of an army of 50,000 men.

Schools.

The State also assists in the support of schools for training horses for the saddle and harness, and for teaching grooms and coachmen how horses ought to be treated, *Ecoles de dressage*. They are owned by private people, or by public bodies, often by towns or departments. The yearly payments amount to £500, £400, or £335, for the three ranks under which the establishments are classed. Each consists of a director, a sub-director, a riding-master, a driving-master, and a head groom, and there must be an apprentice for every two horses, who remains two years in the school. These apprentices are lodged, fed, and taught, free of charge, but towards their support the State pays £11 yearly for each, and gives them prizes of from £8 to £12 when they leave, if they pass satisfactory examinations. No school can receive the State allowance, unless the premises are adapted to give effect to the objects of the institution. The director is appointed by the minister, but he selects all his subordinates, and he may deal in horses. The charges for breaking-in horses, and for the riding and driving lessons, are to be approved by the minister, and a report of the horses in training is to be sent in monthly.

There are sixteen schools thus assisted with Government money, the principal of which are at Caen and Seéz, in Normandy, and there are nine others not receiving this assistance; and besides these, payments may be made to private establishments which seem to deserve such encouragement.

Shows.

There are several shows during the year for made horses, the most important of which are in Normandy, at Caen, Falaise, and Alençon; at each of these £480 is distributed in prizes, and usually from 100 to 125 horses compete. At these country shows the horses are exhibited by breeders, but the grand show in Paris is supported almost wholly by dealers, and mostly from Normandy. Out of 297 horses entered for the April show, 1876, 271 were owned by dealers, one having sent as many as 80. The whole collection showed how much the taste for horses is limited in France to those who use them for display. It may be safely assumed that every horse was for sale, and every one would find a purchaser in Paris. There were some grand specimens of horses, both in pairs and for single harness, well broken and trained, but very few such as could be entered in our classes of hunters, park hacks, or as ladies' horses; there were, indeed, some suitable for these purposes, but there seems too small a demand for them for dealers to train them for a market so limited; and the demand for well-grown and well-trained harness horses is so great that every good horse is put into harness. There was, indeed, a class for saddle-horses, and two or

three well-broken and well-bred horses received prizes; the harness-horses were also mounted, and it was easy to see that if there were any demand there would be a good supply of good saddle-horses. It is a fact, however, that outside the army no one rides in France. As might be expected from an exhibition of dealers' horses, there was too much fat. The driving generally "left much to be desired," the riding more, the attempts at tooling a four-in-hand still more; and to an Englishman, there was a want of smartness in the style of the grooms and coachmen, though there were some notable exceptions in all these cases. Our own shows at Islington are open to criticism, on the score of neatness in the grooms and attendants; an amount of slovenry is permitted there which is not creditable either to exhibitors or managers. The French are decidedly progressing in this respect, and we may expect them soon to rank as nearly level with us in their attendants as they now do in their horses.

There was some good clean jumping at this show, and the whole wound up with an exhibition of some specimens of the kind of horses now bought for the army, and a very interesting *carrousel* executed by pupils from the cavalry school at Saumur upon thorough-bred horses, which showed, both on the part of the riders and of the horses, that there was capital material for making an excellent cavalry, and that the training was taking a right direction.

Those who can recollect what the carriage and heavy cavalry horse was forty years ago in France, will

recognise a great improvement. The big coarse head with the Roman nose has gone; the coat which by no amount of dressing could be got to shine, has been replaced by a skin as fine as velvet; and the lumbering heavy gait has given place to an action with perhaps an exaggeration of lightsomeness: there are pairs of "Steppairs" in Paris, of Norman breed, which, if driven down Piccadilly, would cause every second passer-by to stop and wonder what country could produce such wonderful goers.

At the spring show, in 1877, at Paris, there was a large increase in the entries, they amounted to 469, which was seventy-two above those of 1876, and the increase was wholly from private breeders, ninety-six having been sent by them against twenty-six in 1876.

Breeding.

The chief horse-breeding countries are Brittany, Normandy, and Picardy. The farmers must find the business an increasingly profitable one, and unless it interferes too much with that of other stock, which is also becoming more profitable, the number of horses may be expected to increase.

The comparison of exportations and importations of late years stands thus:—

	Exportation.	Importation.	Excess of Exports.
1872	15,913	13,807	2,106
1873	22,873	11,246	11,577
1874	23,720	10,280	13,440

Of this quantity England takes more than one-third, but of the 11,959 geldings exported in 1874,

England took 5,712, besides 1,669 mares. The horses purchased for our autumn manœuvres are mostly French horses, and our artillery and baggage-wagons are largely horsed with animals from France, which are mostly grey in colour, the worst colour that can be chosen for horses for any military purposes.

The value of the horses exported has increased from about £200,000 in 1865-66 to about £600,000 in 1873-74.

During the three previous years, and the first six months of 1875, 74,385 horses were exported: 15,262 to Germany, 14,873 to Belgium, more than 20,000 to England, 8,555 to Switzerland, the balance to other countries.

Before 1870-72 Germany did not buy more than 1,500 yearly, Belgium not 500, and England less than 400. The horses recently exported to Belgium and Switzerland are certainly intended for Germany, which brings the German importations from France up to nearly 39,000, or about 13,000 yearly. During the same period of three years France imported from Germany 8,947 horses. Of the horses exported to Germany, 11,594 were mares, and 1,952 were sires; and 56,290 mules have been exported since the war.

It would seem that with all the exertions made by the French Government it is open to take army horses where they can be got not of French breeds. In May, 1877, a lot of seventy were landed at Havre from La Plata, and fifty of them were bought for the army

at prices running from £40 to £56; the others were refused, being under the standard for height.

The return of 1873 shows the stock of cattle in France to be 11,700,000, nearly the double of what it was in 1812; in 1840 it was under 10,000,000; in 1852, nearly 14,000,000; in 1862, under 13,000,000; but as we are to distrust this last return as being too favourable, it is probable that there was a larger falling off between 1852 and 1862 than these figures indicate. The loss of territory in 1871 caused a loss of stock to the extent of 500,000, so that it may be assumed, for the remainder of France, that there has been no material change between 1862 and 1873. Cattle.

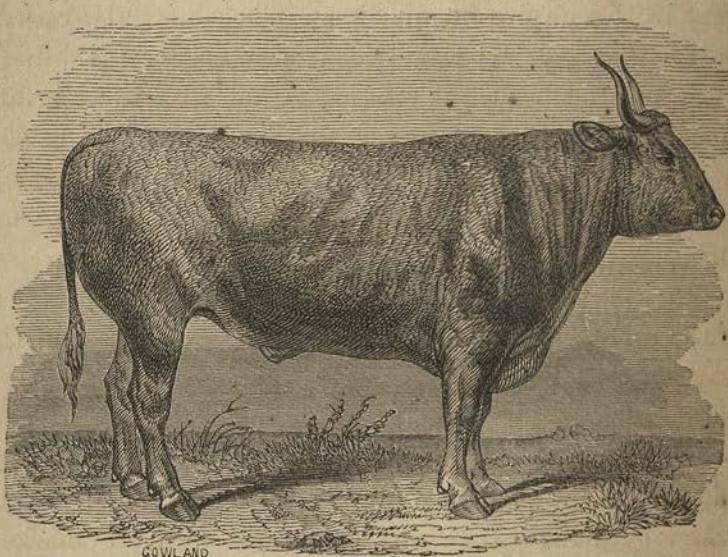
6,700,000 head are in the forty departments of the north and east of France, and 5,000,000 in the forty-seven departments of the south and west.

The number of breeds seems infinite, each little district having a variety differing in some small degree from those surrounding it, and claiming a superiority over every other; but there are fifteen acknowledged races, of which the others are merely offshoots. Of these fifteen, nine are specially workers; three specially milkers; one, that of Auvergne or Salers, considered extremely good all round, for work, for milk, and for meat; one, the Comtoise or Femeline, useful in all three, but not really very good in any; and one only exclusively an animal for the butcher, the Maine.

In addition to these local breeds, a certain number of cows are imported from Switzerland and from

Holland, but the importations only exceed the exportations by 50,000 head: France rears enough cattle for her own wants.

The destiny of all this stock is to be eaten, but cattle in France have much to do in earning their keep



AUVERGNE, OR SALERS OX.

by work or by supplying milk before they reach the shambles.

With the single exception of a tract which includes Maine, parts of Anjou and of Eastern Brittany, and in which there are 1,000,000 head, labour and milk are the first things demanded of cattle in France. In the south it is almost wholly labour that is required; in the north chiefly milk, what labour is done there by

oxen is done by animals bought outside the region, not reared in it.

The three objects of labour, milk, and meat required —the two first being essential and paramount—render improvement, in the sense of giving more meat, one of considerable difficulty. The English shorthorn is the agent in the improvement where it has been attempted by crossing, and has found it an easy matter in Maine, where nothing but meat was asked for; and to so great an extent has the shorthorn been used that the cattle in this district are no way to be distinguished from such as would be seen in any markets in Northamptonshire.

In seeking to improve the meat-producing properties of the other breeds, the shorthorn has made but little way; it is absolutely banished by most breeders of working oxen, except in the Charollais district; this last breed was always celebrated for its good meat, and though the bullocks were worked, great pains were taken by many farmers to send good meat to market, and not to work oxen either too much or too long. The shorthorn cross is introduced with great caution. The colour of the race is white, so no shorthorns are used but those which are the same colour, and the introduction has not made itself conspicuously felt. If an animal carrying an unusual amount of good flesh is seen, it may be suspected that shorthorn blood is there, but no boast is made about it; indeed, a new breed is supposed to have been established, and, inasmuch as the breeders in the Nièvre have most freely used

this cross, those animals which have it are called Nivernais. The shorthorn is ignored, although really the Nivernais is only a cross between a shorthorn and a Charollais.

The greatly enhanced price of meat has induced greater pains to be taken in producing it; those who were in a hurry have used the shorthorn at once, but much progress has been made by improving the breed by selection of the best parents, by better food when young, by care in not overworking, and by putting the animals up to fat before they were too old. The result is shown in the increased produce of meat; in 1840, from a stock of 9,936,538 head, 298,889 tons were produced; in 1873, from 10,469,000 head, the produce was 464,283 tons.

French breeders claim for their meat produced in this careful manner a superiority of quality over that of English meat produced from shorthorns stall-fed, and brought to an early and forced maturity. They maintain that animals reared up to the age of five or six years with good food and healthy exercise, will make better meat than those got up at two years old to the weight of a full-grown animal. At the London show in 1876, every prize animal in each of the five classes of shorthorns seemed so tender on its feet as to be hardly able to walk; not one had probably had a good day's healthy exercise since he was born. If animals are in a state of chronic disease, it does not in many cases prevent their being fatted up for market, and presenting a delusive appearance of fine condition. Mr. Bakewell, to whom

farmers owe so much, "used to overflow certain of his pastures, and when the water was run off, turn upon them those of his sheep which he wanted to prepare for market. They speedily became rotted, and in the early stage of the disease they accumulated flesh and fat with wonderful rapidity." (*Youatt.*)

One French writer of eminence permits himself to speak with something like contempt of English beef, for when noticing a work on Dutch cattle by Hengeveld, compiler of the Dutch herdbook, in which that writer says that the meat from the grass-fed animals in Holland is more delicate and of better flavour than that of foreign breeds, his French critic suggests that "the remark may be true enough if applied to English beef; but the palate accustomed to the flavour of the beef produced from the Vendéen and Auvergne cattle will find that from the Dutch somewhat insipid, in spite of all the care that may be taken with the roasting."

Dr. Chalmers, in his manual of diet, 1876, confirms this view of the superiority of meat from full-grown animals to that from the immature. "What is the worth of this hypertrophied muscle and adipose tissue? Breeders, if they give a thought to the subject, must be conscious that the heart and arteries do not grow at the same morbid pace with the rest of the body, and the animal, imperfectly supplied with blood, is in a state of extreme anæmia. Premature development of size and puberty are, on the breeder's side, a virtue, both in those destined for the butcher and those he selects as breeders. It is a saving of time, and time is money; but saving is

not always the best economy. I fear that our agricultural societies are not free from the blame of this, inducing competition in bulk by their system of prizes; and I do not see how they can counteract the evil that has been wrought, unless by instituting rewards for prime joints to be adjudged at the table as well as in the larder."

Now to go back to the time when it took four or six years to produce a bullock fit for the butcher, to rear one animal in the time in which two or three are now reared, would indeed be a step in the wrong direction; the efforts must be wholly the other way, and meat must be made as at the farm at Coleshill (see *Field*, January 27, 1877), where, in 1876, eleven beasts were sold averaging eighteen months and two weeks old, selling one with another for £20 18s. 6d. each: the highest prices were £24 for one seventeen months old, and £23 for one sixteen months old. The live weight of each averaged 1,015 lbs., which gives a weekly increase of $12\frac{3}{4}$ lbs. They paid 5s. per week each from their birth. They were always under cover, never being turned out, and they made the maximum of manure from the minimum of straw. A comparison of the cost of feeding cattle of three or four years old with that of younger stock, is all in favour of the latter, but if bullocks can be profitably kept until they are mature, and then fatted, having no expense to be charged against them but the extra food for fatting, it is conceivable that it may be a profitable process to put full-grown animals up to fat, and that the meat they will give will be better than that of the overgrown

calves of a year and a half old, and the French writer be justified in his assertion that French beef is better than English; and he can support his views by the opinion of Arthur Young, who, writing before shorthorns were invented, when they were only "Holderness," and mainly grass-fed, could say, "We have about half a dozen real English dishes that exceed anything, in my opinion, to be met with in France: it is an idle prejudice to class roast beef among them, for there is not better beef in the world than in Paris."

It is fortunate if working oxen can be turned into good beef, for working oxen over the larger part of France there always will be: the small farmers of from six to eighty acres cannot have two sets of animals, one to do the work and one to bring in money, they must combine the two. When meat sold for much less money than it does now, the oxen were worked pretty nearly until they could work no longer, and then turned into such beef as could be managed. Things are very different now. The smaller farmers of arable land are not usually breeders: they buy calves at perhaps six months old, and keep them more or less well until they can do a little light work. They use four or five to do the labour of two or three, and as they grow in age they grow in value, and by the time they are two or three years old they are well broken, and sell at a good profit to larger farmers, their labour and their manure having paid for their keep. Their new owners act much in the same way, not usually putting them to the extreme of what they can do, reckoning that the labour of a bullock

for five hours a day amply covers the cost of his keep. Doing this good work until they are six or seven years old, they then sell them for stall-feeding to those who make a business of it, at a paying profit on original cost.

This is the result aimed at now, and to a great degree attained: advocates of the shorthorn contend that it would be greatly assisted by a little strain of this blood, which would improve the feeding properties, and not weaken too much the working powers, as they are applied much less severely than formerly; but even if good beef cannot be made from working oxen, with or without the shorthorn, they must still be used all through the south, for the sufficient reason that there is no other beast of draught for farm-work. The horses are light and excitable, mules not in sufficient numbers, whereas oxen are always to be had, and they work with a steady pull that horses are incapable of; they do not want the food that horses want, and which, indeed, the south does not supply; they are not so exacting about where they are lodged—the open field is as good for them as the comfortable stable.

As the cattle are ready for the fattening stall, they drift northward; few districts in the south produce food that would fatten them. The jobbers who attend the fairs are becoming yearly more and more exacting as to the quality of the animals they buy, and the sellers must meet their wants, under the penalty of driving their beasts home again unsold, or of accepting a price below that obtained by their neighbours, who take more pains.

The breeders of milking cows are as anxious as those

who breed workers to make the best of both qualities, and they meet with more success, as far as success can be attained, by the use of shorthorn blood. This is specially the case in Brittany and Normandy, not that the cross is accepted freely and generally, but it is making its way, and it is becoming recognised that cows with the shorthorn cross will give as much milk and as good as the pure Norman breed, and when they are off their milk they fatten very much better than the old coarse bony race.

The milk-producing districts of Flanders and Artois rely wholly on the Flemish and Dutch cattle. The "ameliorating race" is, however, welcomed in Champagne, where the business of veal manufacture is very important, and that is about the limit to which the shorthorn extends among the milk-producing breeds.

Milk will always be of great importance in French farming; it is the article whose benefit makes itself felt daily and weekly; the daily nourishment of the family of the small farmer depends largely upon it, and it is the only produce which surely brings in some weekly money. Milking-cattle give more food than those bred for the butcher only. The best meat-producing stock in France can hardly be ready for market under three years of age, and in that time a cow will have given milk for twelve or fourteen months, besides a couple of calves. Early maturity for milk is fully as important as early maturity for meat. The French farmer must have money, or money's worth, coming in weekly; he can't put up stock for two or three years,

and wait while it grows into value, neither earning money by work, nor feeding the family with milk all that time.

On small farms where it would not pay to have working oxen or horses, cows are used, and while they are at work they are more highly fed, having a peck of oats daily; they are worked only after the morning's milking, and cease working some time before that of the evening, and are not at all worked when heavy in calf. By good management five, six, or seven hours' work a day is obtained at small cost.

At the shows for fat stock the shorthorn carries off the bulk of the prizes, as, indeed, it should, but the Nivernais has held its own well; and at Paris, in 1877, the first prize for oxen up to four years old was taken by a Landais, from Pau, in competition with twenty-eight other animals which were mostly shorthorns, or had shorthorn blood; this distinction must have been gained by perfection of form, as it only weighed 1,701 lbs., at forty-six months old. At the same show there were 251 entries, sixty-six of which were in classes open to pure native breeds only, and 185 in classes open to animals of any breed; of these 185, about half, ninety-one entries, were acknowledged shorthorn, or a crossed shorthorn; and of the forty-seven prizes and commendations given in these classes the shorthorns, or shorthorn crosses, obtained thirty-four, and the Charolais, or Charolais crossed, eighteen.

Such an evidence of the value of the shorthorn strain in making meat must influence French breeders,

if the dread of lessening the milk-producing properties could be shown to be unreasonably strong, and the show of dairy cows in London in the winter of 1876-7 would lead to the belief that it is. The weakening the working power of the oxen is a more solid objection to its introduction; and the following extract from a letter written by Mr. Abram Renick, the celebrated breeder of shorthorns in Kentucky—whose heifer, "Red Rose of Ranoch," was bought by Lord Dunmore for four thousand guineas—tends to show that this dread is also exaggerated:—

"Sharon, *February* 27th, 1877.

"I have worked oxen on my farm ever since I have been farming, and the best cattle for the purpose that I have used were a cross of shorthorn on our native cattle, say three-fourths shorthorn to one-fourth native. Half-bloods can be used longer before they become too large and heavy for work, but are not so handsome nor so profitable here. My near neighbour and friend, B. F. Vanmeter, is now working under yoke together as a pair two aged cows—Rose of Sharons—both of my breeding, Mayflower fifth, twelve years old, and Leonora, eleven years old. The former is the dam of some half-dozen calves, one of which, May Johnson, is in the herd of Mr. Charles Fox, of England; but she failed to breed before I sold her to Mr. V., and he reduced her by work, and had her to produce him three calves in as many years; and then, as she had skipped a few months recently, has become so fat that he returns her to hard labour on light diet to reduce her. Leonora was a regular breeder until last year, when she skipped over, and became so immensely fat that she must keep company with Mayflower under the yoke. They are now making a capital pair of '*oxen*' while the weather fits them; but if the earth were frozen, their great weight would soon wear their feet off until they could not go; and if the weather were hot, they could not stand that on account of excessive fat. . . .

know nothing of any French breeds of cattle; but a judicious cross of shorthorn makes a very decided improvement upon any breed in this country for practical purposes."

Assurance of good milking properties also comes to us from America. Mr. Lowder, of Indiana, has a large herd of shorthorns, one of which gives fifty pounds' weight of milk per day; that is, more than her own weight in a month. There was a cow at the exhibition at Philadelphia weighing 950 pounds which did equally well.

Working shorthorn cattle would seem to be common in America, as at the Philadelphia exhibition there were nine pairs, Devon and Durham, shown.

Calves.

Veal is much more largely eaten in France than in England, for an excellent reason: it is so much better. If the veal in England were as tender, as juicy, and as succulent as in France, it would meet with as much favour as in the latter country. We shall probably see some progress in this direction, as it may be found to pay better to fat calves than to keep stock for two or three years. In France they offer the most striking examples of early maturity; at three months old they often weigh 440 pounds; but the average under good management in the veal-producing districts of Champagne and Brie may be taken at 330 pounds at that age, and they sell at from £9 to £15; they give from 220 to 280 pounds of clean meat to the butcher, besides offal. It would be hard to find a similar instance of such an increase of weight in so short a time. These

animals are worth as much money at three months old as they would be at two years if they were kept as they would be in France in a general way, and pay better than if put up to fatten for two years longer.

Cattle are treated differently in the different districts : in the grazing countries of Normandy, Charolais, Nivernais, Flanders, La Vendée, Brittany, and Limousin, they are always out-of-doors—working oxen are housed to rest and feed; in the south, where there is no grass, they are housed, partly for the convenience of feeding and partly on account of the heat. Milch cows are put out to feed for a part of the day. Upon the whole, housing cattle, even when not put up for fatting, is more usual in France than in England. Treatment

Oxen used together become so attached that if one should die his fellow will sicken and die also; they are therefore never separated, but are worked together, and together they go to the fatting stall and the shambles. "People unacquainted with the country will not believe in this affection of the ox for his yoke-fellow. They should come and see one of the poor beasts in the corner of his stable, thin, wasted, lashing with his tail his thin flanks, sniffing with uneasiness and disdain at the provender offered to him, his eyes for ever turned towards the stable door, scratching with his foot at the empty space left at his side, smelling the yokes and bands which his companion has worn, and incessantly calling for him with piteous lowings. The oxherd will tell you there are a pair of oxen gone: his brother is dead, and

this one will work no more; he ought to be fattened for killing, but one cannot get him to eat, and in a short time he will have starved himself to death."—*George Sand. Translated by Matthew Arnold.*

It is interesting to notice the condition we were in in England a hundred years ago, when we had to seek stock in foreign parts to improve our own breed. The following extract is from an article on cows in the "Monthly Miscellany" for 1774:—

"The breed of cows has been improved by a foreign mixture, properly adapted to supply the imperfections of our own. Such as are purely British are far inferior in size to those on many parts of the Continent, but those which we have thus improved excel the others. Our Lincolnshire kind derive their size from the Holstein breed, and the large hornless cattle that are found in some parts of England came originally from Poland. Our graziers now, therefore, endeavoured to mix the two breeds, the large Holstein with the small northern, and from both results that fine milch breed which excels any other part of the world."

This Holstein cross succeeded better in Holderness than in Lincolnshire, or rather, succeeded more generally; and it was from Holderness that the breeders in Durham, who so improved the breed, sought their stock. In drawings, of about the year 1800, of the finest beasts reared in Durham, they are called Holderness, but there are drawings of equally fine oxen reared in Lincolnshire, of the same period. The Lincolnshire seem to have been red roan in colour, the Holderness more of a blue roan, and the Holderness appear to have been the best milkers.

In 1852 the number of sheep returned as existing in France was 33,000,000; in 1862, 29,500,000; and in 1873, 25,935,114. It is believed that the falling off in the last decade has not been so great as these figures indicate, the returns of 1862 being considered too favourable. There is no doubt there was some reduction from various causes, one being the loss of territory, which accounts for 300,000; and the return of 1873 may be accepted as sufficiently correct. During about the same period there was a serious decline in the stock of sheep in Great Britain, the returns for 1868 being 30,711,000, while those for 1871 showed only 27,000,000. There was a recovery in England, 1874 almost equalling 1868—a recovery, however, not maintained, 1875 falling 1,000,000 below 1874, and 1876 1,000,000 again below 1875, which still exceeded 1871 by 1,000,000. In France the decrease is probably permanent as regards the numbers, but the size is yearly increasing. Sheep.

One of the causes of this decrease is the continual division of estates into smaller holdings, under which system the land must produce something more profitable than sheep, or the owners will starve. Another is the inclosure of common lands, and the abolition of the right of turning stock upon the uninclosed and uncultivated lands of any commune by the inhabitants of a neighbouring one, and also of that possessed by the inhabitants of a commune of grazing upon the stubbles and fallows of their neighbours in the same commune. These two privileges enable many a poor man to keep a few miserable sheep, which must disappear. Better

farming may allow of more stock to be kept after a time, and it will certainly be better stock; but as the land will probably get into the hands of small owners, it is most likely that cows and not sheep will be the stock used.

Of the 26,000,000 sheep, 15,000,000 are in the southern half of the country, and 11,000,000 in the northern half, the northern eleven being worth considerably more than the southern fifteen. The merino has made some progress in the south, but the sheep there are generally small and coarse-woolled. Over a large tract of country they are of the Barbary breed, brought from Africa to the extent of 300,000 yearly; the breed generally, and the system of feeding, being the same now as for ages past.

Through the south the sheep are kept out-of-doors, not in sheds or stables, as in the north: they are folded at night, and protected from wolves by the shepherds and large dogs. In the winter they remain in the valleys, or on the lower slopes of the hills; in the summer they move to the higher pastures in the mountains of the Alps, Provence, the Cevennes, and Rousillon. Some of these summer sheep-runs—as, for instance, those in Languedoc—are not mountains, but table-lands 3,000 to 4,000 feet high, covered with snow in winter, and in summer offering nothing to the view, as far as eye can reach, but great level plains of pasture below and the blue sky above, and on which the sheep are estimated to walk from eight to fifteen miles a day in grazing. The Camargue, a salt-marsh of 200,000

acres, supports many sheep in winter; and 400,000 head find nourishment during the six winter months upon the plain of the Crau, 50,000 acres in extent, covered with stones of various sizes, underneath which the sheep find a herbage which they relish, but which they cannot reach without turning the stones on one side. The breed is very much the same all across the south, modified in some cases by a cross with the merino, and with various names, according to the district. These pastures are good for rearing sheep, but none of them rich enough to fatten them; they are bred for their milk, their wool, and to be sold as store sheep to be fattened in the north.

Ewes' Milk—Cheese.

The most immediate source of profit here is the milk of the ewes, which is used in cheesemaking; its use is very general through the south, and it is increasing. The largest and best-known manufacture is that of Roquefort, for which the milk of 250,000 ewes is required, and the amount made reaches to from 3,000 to 3,500 tons. The average produce from each ewe is estimated at 24 lbs. of cheese yearly, but this is exceeded in the best-managed flocks. Thirty years ago the milk of ten ewes was required to make 1 cwt. of cheese; now three suffice, besides the milk sucked by the lamb for two months. It is by no means rare to find whole flocks which give 55 lbs. per head in the season. In 1874 a small landowner made 8 cwt. of cheese from the milk of thirteen ewes; the cheese from

each ewe sold for 30s., the wool for 4s. 6d., and the lamb, sold at a few days old, 4s. 6d. The average weight of the fleece on the high downs is 4 lbs., in the valleys 5 lbs ; and even up to 6 lbs. or 7 lbs. where the merino is prominent: it is very loaded, and does not yield, after washing, more than 33 to 35 per cent. of clean wool. Merinos were introduced in 1814–15, to the manifest improvement of the wool, but not of the milk, the merinos being the worst milkers of any breed of sheep; and this cross is not now in favour. The characteristics of the milk-giving sheep of Larzac are very similar to those of the best races of milch cows; the chest is narrow and not deep, the flank broad, the belly large, shoulders and haunches slack, the udder very large—so large that the ewes walk with difficulty.

Three thousand five hundred tons of cheese, at £48 per ton, to the farmer will bring £168,000; and the wool of the 400,000 sheep will make, at 4s. a head, £80,000; 80,000 ewes sold yearly to the butcher at 12s. 6d. each make £50,000; the 80,000 ewes are replaced by 80,000 lambs, which leaves 140,000 to send to market, where they make 3s. 4d. each, or £22,400. These various items together show that a good deal over £300,000 comes to the farmers in the neighbourhood of Roquefort. The price of a three-year-old ewe is £1 ; when well cared for each will give yearly 17s. worth of milk, 4s. worth of wool or more, and a lamb worth 3s. 4d. ; in addition to this there is the manure. The amount of money turned over by the time the cheeses are sold to the retail dealers is quite

£600,000. In the year 1800 the quantity made was only 250 tons, and it did not increase very much before 1850, when it reached 1,400 tons, and now it amounts to 3,500, and is extending. At first it was only in the department of Aveyron, on the high table-lands of Larzac, that the cheese was made, but Haute Gavonne and Ariege are adopting the trade, crossing their own sheep with Larzac rams. The cheese made outside the district will, no doubt, be a profitable and useful article of consumption, but will probably bear the same relation to the true Roquefort that the Brie made in the Meuse does to that made in Seine et Marne.

Ewes' milk is much more rich than that from cows, the solids being eighteen in the former, as against twelve in the latter, and the fat in the milk being quite double.

It was at one time supposed that the Roquefort cheese gained some of its peculiarity from the aromatic herbs upon which the sheep pastured on the mountains, but this is an error; the farmers, on the contrary, are very careful not to let the sheep graze where these herbs are abundant. In summer the sheep graze upon meadows of artificial grasses, and they are kept closely to one spot, so as to eat it thoroughly down. The less watery the grass is the better is the milk, so many farmers keep a supply of dry fodder to give the ewes to eat, while they are fed upon green meat, and the milking time is advanced as much as possible; formerly it began in May, but now the ewes are put to the ram in August or September, so that the lambs may drop in January

or February, which allows milking to begin in February. In winter they are fed on Sainfoin and Lucerne hay, with barley meal and water.

The cheeses are all made by the farmers at home, and delivered by them to the owners of the caves where they are prepared, and it is on this preparation that the peculiarity of the cheese is said to depend, as there is no difference in the process, or no material difference between that followed at Roquefort and that adopted elsewhere. Seven people can milk 200 ewes; the milking is done twice a day. The curds are formed and pressed as is usual; the only remarkable feature is the introduction of mould into the cheese, which gives it those blue streaks so essential. This is done by powdering a layer of the curds when placed in the mould with crumbs of mouldy bread; on this another layer of curds is placed, which is again powdered, and on this the last layer is placed. The buyers attach great importance to the quality of this bread. They make it themselves, and distribute it to the farmers. It is made from equal proportions of flour from wheat, from winter barley, and from spring barley. A large quantity of yeast is used, one part to every twenty-three of dough, and a little vinegar is added; it is kneaded a long time, until the dough is very stiff, and is very much baked; when drawn from the oven it is placed in a somewhat warm room, and when the mould has spread through all the crumb it is ground, to reduce it to powder; it is then passed through a fine sieve. Botanists have given the name *Penicellum glaucum* to the blue mould of

Roquefort cheese. A bit of old cheese is never introduced, as is supposed by some people.

It is when the cheeses are delivered at the caves that the treatment begins which is peculiar to Roquefort. They are received, and the imperfect ones rejected; they are then salted, which takes three days; two days after this is completed a sticky exudation is removed with a knife; they are then scraped, the scrapings being sold at 2d. to 2½d. per lb., and eaten by the workmen. An opinion can now be formed of the quality, and they are sorted into three degrees, which represent a difference of about 8s. per cwt. They are now removed to the caves, where they remain for eight days in small piles of three cheeses each; they are then placed on their edges, so that they do not touch each other, when they become covered with a reddish yellow rind. The colour is not the same in all the cases—sometimes a white mould grows on them a couple of inches long; they are then again scraped. This scraping is done once a week or once a fortnight, as they mature. The best cheeses ripen quickest. The cheeses of the earlier months are ripe in thirty to forty days, and do not keep long; those of the end of the season remain longer in the cellars, they are scraped many times, and towards the end of September are quite ripe. These later cheeses are the best, and keep longest. The loss of weight from these frequent scrapings amounts to 23 or 25 per cent. The work is done by women, of whom about 400 are employed. The season lasts eight months, and they receive £8 wages, and are boarded and

lodged. They are warmly clothed, and the occupation is not found injurious.

The largest preparer of the cheese is the "Societé des Caves Réunies," a company formed in 1851. This company advances money to the farmers without interest, upon an engagement to deliver cheese either at a contract price, or at the price of the day; and also lends money for periods of from two months to two years to enable men to buy or start a flock, on a payment of interest.

On the north of the high table-land of Larzac is a steep cliff 300 feet high, called the mountain of Cambelon. Here at some remote period has occurred a great landslip, and upon the wreck has been built the village of Roquefort. The caverns formed by the broken mass have a number of fissures, and many springs. There is a constant circulation of air, charged with moisture, through these fissures, and of a temperature keeping pretty constant at between 39° and 46° Fahrenheit, varying somewhat in the different caves. This temperature is favourable to the ripening of the cheeses; if lower it would be checked, if higher it would be stimulated too much. A dry air would crack the cheeses; a damper one would make them soft. The cave is a large space into which these fissures open, and here the cheeses are placed on shelves and tables edgeways, so that the air may circulate round them. Twenty-three of the caves are natural, and eleven have been cut out. It is maturing in these caves that makes the Roquefort cheeses what they are. Other people may

make ewe's milk cheeses; mature them in damp caves, and succeed in making a very good article, which assimilates to the Roquefort, but is as distinct from it as the ordinary wines of a good district are from those choice ones which have given that district its reputation.

Migration.

The migration of the flocks from the plains to the mountain pastures in summer, called "transhumance," is one of the most curious sights in the country. It is practised also in Italy and Spain, and has been for centuries. The rules by which the migrations in France are still governed were framed in the year 1235, and again arranged in 1442. When the time arrives for the sheep to move, the head shepherds provide themselves with donkeys and goats. The donkeys carry the provisions for the journey; the he-goats have each a bell, every bell with a different sound, and they lead the flocks; the she-goats furnish milk. The collection for each mountain pasture is called a caravan, and may consist of from 20,000 to 40,000 head, divided into flocks of from 2,000 to 4,000, under the charge of one shepherd, assisted by large dogs, at the rate of one dog for every 400 sheep. When all is ready the sheep are examined, any sickly ones separated from the rest, and the day and hour of departure fixed. The head-quarters are in the centre of the caravan; the chief shepherd is there with all the provisions, often requiring a hundred donkeys to carry them. Every evening the under shepherds report to the chief the state of the flocks, and

progress for the day following is ordered according as the sheep bear the journey more or less well, or as the road may furnish food and water in more or less abun-

PYRENEAN SHEPHERD'S DOG.

dance. During the first days the progress is at the rate of only five to eight miles a day. The roads must be in good condition, and the weather very favourable for a distance of as much as twelve to fifteen miles to be

covered in any one day. The route followed is a wide grassy track, which has been devoted to this use for centuries. Every evening during the month that the journey occupies, the men sleep out in the open air, collecting their sheep together closely. One of the shepherds starts each morning before the general departure to prepare the camping-ground and the food, and one remains behind to settle with the owners of the lands where the flocks have passed the night, and to pay for any damage that may have been done. The rent paid for the mountain pasture varies from fivepence to fifteen-pence per head for the season; the cost of wages, food, payment for damage done on the road is generally one shilling and eightpence per head, and the loss from deaths amounts to about 4 per cent. This yearly migration is considered very injurious to the country, and if the mountains were planted, as they ought to be, and indeed are becoming, it must cease.

Sheep in the North.

Through the northern part of France the sheep for many ages were a long-woolled breed—Artois, Picardy, and part of Champagne were noted for the production of wool, and during the Roman domination seem to have held towards Rome much the same position that England in the Middle Ages held towards Europe, and that Australia now holds; Artois, moreover, manufactured the wool grown by itself and neighbours. So important was the manufacture that an insurrection of the Gauls in the third century caused much anxiety at Rome lest the supply of woollen goods should be

interrupted, and caused the Emperor Gallienus to exclaim, "Is the Republic in danger because the wool of the Atrebates is likely to fail it?" This breed, which is found in all the countries bordering the German Ocean from the Elbe to the Seine, is really the same as our breed of Lincolns, Leicesters, and Kent, modified by food and treatment, and, as regards the foreign part, not improved, as it has been in England, by Bakewell and others.

The improvement of the breed of sheep in France began with a view to the production of wool solely, and the factor in the improvement was the merino introduced from Spain, where it had been received from Africa in the reign of Louis XVI. The few specimens obtained from the King of Spain were placed at Rambouillet, in 1786, but no progress was made in spreading the race before 1816; by good luck or good management the establishment lived through the troublous times of the Revolution and the Empire, although it had given no proofs of utility. The name "merino" is derived from a Spanish word which signifies wandering, and had reference to the change of pasture to which it was subjected in Spain, and probably in its earlier locality, Africa, similar to the "transhumance" of France. It ceased to justify its name, for it never moved from Rambouillet for thirty years, and the breed still occupies the same locality now. It wandered once, however, for during the Prussian occupation the guardian of the flock, Rougeoreille, dreading the all-devouring wants of the Germans, started with it on foot, on the approach of

OLD RAMBOUILLET MERINO.

MODERN RAMBOUILLET MERINO.

the dreaded foe, and walked with it until it was safely lodged in Brittany. After 1816 it spread gradually through France, until at this time there are probably 9,000,000 of more or less pure merinos in the north of France, and 60,000,000 in Australia, New Zealand, and South Africa. No modern introduction of a new race

SILKY-WOOLLED MERINO—MAUCHAMP BREED.

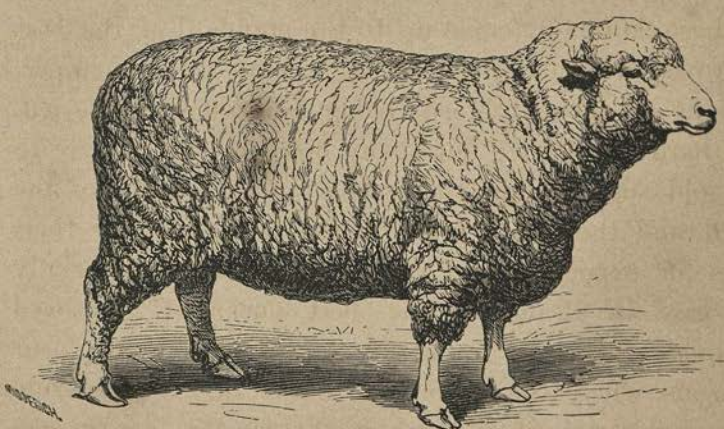
has approached this one in value ; it has brought wealth to France, and prosperity to our colonies.

The merinos, now becoming very general in France, are very different from the animals first introduced at the end of the last century. In those first bred, the sole object sought for was a large fleece of wool of fine quality. The shape was in every way deficient for a meat-producing animal : the legs were long, the chest narrow,

the framework heavy and bony, the head large with enormous curved horns, the wool was short and very fine, and it was next to an impossibility to fatten them. Many years of attention directed solely to the development of the aptitude to produce wool increased its production enormously, and the breed of French merinos at Rambouillet had wool on every part of its body, from almost the tip of its nose to the feet; the area of skin upon which wool was grown was extended by encouraging the formation of heavy folds without increasing the size of the body. Deep wrinkles were formed, chiefly round the neck, from which descended a mass of skin, reaching almost to the ground. This was found to be an error, the wool growing between the wrinkles was of inferior quality, as was that grown under the belly and round the legs; and the improved merino, which has no folds of skin, nor any wool on the lower part of the legs, gives a fleece as heavy as those which seem to show such a mass of wool, and it is of a superior and more even quality.

The reduction in the value of short and fine wool caused by the large importations from Australia, and the largely increased price of meat, have between them brought about this change to the kind of merinos now bred. The head is comparatively small, the horns disappear, the neck is short, the chest broad, the bones small; early maturity has so far progressed that they have at least four fully-developed teeth at eighteen months old, and there are flocks in Aisne in which the rams have the full complement of teeth at twenty-six months;

IMPROVED MERINO FROM AISNE.



they fatten well, and a good specimen of the improved merino very much resembles a Southdown in shape.

The character of the wool has also changed: from being short and fine it has become longer, without, however, any sacrifice of its fineness or value; it is more a wool for combing than carding, and so finds a good market for making certain woollen fabrics much manufactured in France, for which the Australian wools are not so suitable.

Of the 26,000,000 sheep in France about 9,000,000 are merinos, more or less pure. They are not found much in the south, and nowhere do they approach the sea: the marine climate does not seem to agree with them; no attempts to acclimatise them near the sea have been successful, and they want higher food than the south generally furnishes. A very small proportion of these 9,000,000 come up to the standard of the best improved merinos; most of them have all the imperfections of the old breed, being bony, narrow-chested, and hard to fatten; but many breeders still adhere to this old sort, priding themselves on the purity of the breed, and they have found a profitable sale for their rams for exportation to the colonies—this is especially the case in Beauce. The best flocks of improved merinos are to be found in Aisne, particularly near Soissons, where the adherence to the improved merino is very determined, and where the farmers are no way inclined to follow the example of some of their fellow-countrymen in adopting the cross with the Leicester. Some of the principal breeders here possess as many as

1,000 sheep, and let annually forty-five to fifty rams at from £10 to £12 each for the season; this year (1874) the fleece sold generally for 14s., and weighed over 13 lbs. in the grease.

The weight of merino sheep as usually sent to market at present is from 110 to 132 lbs.: it is increasing yearly. One hundred ewes culled from a farm in Brie as being the least good, and clipped on the 15th February, averaged 156 lbs., the fleeces weighing 9 lbs. 15 ozs.; the lambs from the same ewes averaged 123 lbs. at nine months old, giving a clip of wool of 5 lbs. 8 ozs., and which sold at 14¼d. per lb.

On a farm at Châteaudun, in Beauce, the males at six months old weighed 99 lbs., the females 66 lbs. On another farm a ram had the full complement of teeth, and weighed 231 lbs. at twenty-six months; a ewe of the same age had six teeth and weighed 154 lbs. At Genouilly the flock at eighteen months weighed from 176 to 189 lbs. These particulars are taken from flocks of acknowledged reputation, and are above the average, but they could be matched very generally in the department of the Aisne.

The weight of the fleece, unwashed, varies between 11 and 22 lbs., and generally gives 30 per cent. of clean washed wool; the fleece of a Southdown, clean washed, will not weigh as much as 4 lbs., and the price is only a quarter that of the merino, and as the weight of the fleece does not suffer by the improvement in the quality of the meat, neither does its quality, as the following measurements will show; they were taken from some of

the best improved flocks in Aisne, which yield a satisfactory weight of meat.

The longest staple was from a ram, and it measured $7\frac{1}{2}$ inches; others, also from rams, measured $4\frac{2}{10}$, $5\frac{1}{10}$, $6\frac{3}{10}$; from ewes, $4\frac{3}{8}$, and $7\frac{1}{10}$. The minimum was from a ewe, and was 4 inches; with this exception, none went below $4\frac{1}{3}$ inches.

In Brie, from several samples examined, the maximum was $5\frac{3}{10}$, and the shortest found was $3\frac{7}{10}$.

Nine samples of colonial wool, taken from the stock of a manufacturer at Reims, gave a maximum of 6 inches; this came from New Zealand; the minimum was $2\frac{9}{10}$ inches, from Australia. The others were $5\frac{1}{2}$ Port Philip, $5\frac{1}{10}$ Australian, $4\frac{1}{2}$ Adelaide, $4\frac{2}{3}$ New Zealand, $4\frac{1}{3}$ Adelaide, and two from Port Philip, $3\frac{19}{20}$. This is no proof that these measurements fairly represent the length of the wools from the colonies, but only those from this manufacturer's stock. As regards the fineness and the tension, the result of the examination was in favour of the French wools; they were finer, and they bore a greater strain.

The enormous supply of wool from the English colonies, which will be permanent, and the increased price of meat, is compelling the French sheep-farmers to pay more attention to the production of meat, and the English breeds are looked to as the means to obtain the increase. The controversy as to which is the most profitable breed is hot and strong, both as to the possibility of preserving the excellent wool of the merinos, or the necessity of sacrificing it to the meat-

producing properties of the English breeds; and again, as to size. If English blood is to be used, should size be sought in the Leicesters or Kent, or quality in the Southdowns? It was at one time laid down as an axiom that the highest development of wool and meat could not be attained in the same animal. This proposition is perhaps even now not absolutely controverted, but it is maintained that a sufficiently profitable production of meat of good quality may be secured, with a valuable production of wool, by attending to the improvement of the merinos by selection and not by crossing; that merinos can be got to weigh as much or more than Southdowns at the same age; that the wool of the better meat-producing merinos is longer than that of the old breed, but it is quite as fine, and better for some purposes, and does not suffer so much from the competition of colonial wools.

Meat sells well, long and fine wool sells well: can the two conditions of wool and meat produce required from a sheep be united in the same animal? The advocates of the merino answer confidently that they can; and the improved merino seems to justify their opinion.

The discussions as to the breed to be used where the English is to be used at all, are as warm as are those between the advocates of the merino and those of the English cross. The Southdown is in great favour, especially across the centre of France. The produce is precocious and hardy, the meat of excellent flavour, and the size of the joints more suitable to the habits of French households than that of the larger

breeds, and it sells at a penny per pound more money than the larger mutton.

That the Leicester cross is also in favour is shown by the result of the annual sale of rams at the Government school at Grignon, in May, 1877. Ten Leicester rams made an average of £28, the highest reaching £44; eleven Leicester and merino cross averaged £31, the highest making £66; five Shropshire downs averaged £17 10s.; and twelve Southdowns £13. At no previous sale have the Leicesters made such a price, which might, however, in some degree be owing to the stoppage of importations from England in consequence of the cattle-plague.

The case in favour of the employment of the larger breed can hardly be better stated, certainly not more vigorously, than by M. de la Trehonnais in his notice of the fat-stock show at Paris in February, 1874.

"In the two-year-old Southdowns of M. Nouette-Delorme, we come to an average of nearly 200 lbs. and in those of the Comte de Bouillé to nearly 150 lbs., all these animals being particularly good. In the pen adjoining these magnificent sheep we come across some Bourbonnais-Crevant, weighing, at the outside, 118 lbs., at over two years of age. This becomes ridiculous; and trusting to the good sense of M. Bignon, it is to be hoped that this eminently practical man will not again offer to us such a miserable result of his rearing. In the prizes for a lot of twenty we have a fine parcel of cross-bred merinos, aged twenty and a half months, sent by M. Triboulet, which

average within a trifle of 220 lbs. each; this is a result to be proud of. In the next pen we have our excellent friend M. Bignon with his inconceivable combination of Bourbonnais-Crevant, showing fifteen sheep of that cross, aged over two years, which barely reach 103 lbs. Here is the system of microscopical cutlets perfectly successful! It is possible that the small cutlet may suit a certain class of customers, rich enough not to find fault with the exiguity of the mouthful, and who, on the contrary, prefer a small cutlet to a large one. Certain fashionable butchers and the restaurateurs, who do not sell cutlets by weight, patronise the small and cry down the large cutlet; this is an affair of business which is reasonable enough as the demand exists, but what I can't understand is that breeders should consider this paucity of result as a real advantage to them because the small sheep sell for 1d. per lb. more than the large, and be satisfied with 56 lbs. of mutton at the end of two years. Where is this theory to lead us? Are none but the rich to eat mutton? Is not the whole mass of the people the customer of the breeder? The small rather than the large purses? Does not any practical man see that the cross-bred merinos of M. Triboulet, weighing 220 lbs., at twenty-six months old, must pay more profit, even at 1d. per lb. less money, than the Bourbonnais-Crevant of M. Bignon which, at the same age, only weigh 103 lbs.? True economical production is not to be found in this direction, but in the growth of big legs of mutton and chops with something on them; in

sheep reared in a year and a half, twenty months at the outside, and weighing at least 200 lbs.. In the face of the deficiency of meat-supply, people can be found to recommend the Bourbonnais-Crevant with its toy-joints, and its chops of a mouthful apiece!"

Such a statement was not left long without an answer. M. Gallicher, deputy for the Cher (Berri), writes that it costs him infinitely less to grow 110 lbs. of mutton with two sheep than with one, and that one pound of mutton from a two-year-old sheep costs less than from a sheep only one year old; protesting at the same time against the masses of fat which go to form English sheep. Complaints are also heard from breeders that the prizes at the shows are given in such a way as to encourage the uneconomical increase in the size of sheep; the interests of the breeder, the tastes and requirements of the consumer, and the reasonable preference of the butcher, are said to be all against the exaggerated increase. Some such murmurings are by no means rare in English households, where 1s. per lb. has to be paid for mutton, not much more than half of which can be eaten.

The controversy proves that, in a country with a soil and climate so diverse as that of France, it is impossible to fix any absolute rule to be followed in every case; heavy sheep can only be reared where the land will bear them; but even in the poorest districts there has been a steady improvement.

There is not a poorer country in France than the heath district of Brittany, and the evidence of improve-

ment here is conclusive, and there is no reason to believe that it is greater here than elsewhere. M. Rieffel, Director of the Agricultural College of Grand Jouan, in Brittany, states that when he first went there in 1830 he bought seventy ewes at a neighbouring fair at an average price of five francs (4s. 2d.) a head, that being the usual value. He has attended the same fair for forty-five years, and has observed a continuous improvement; the sheep, which in 1830 did not exceed 33 lbs. total weight, now weigh double, and the gross return in money is six times what it was then. In 1830 the Brittany sheep were probably as small as any in France, and they now do not exceed the average of sheep in the south, and only reach to about half the size of those in Flanders and Normandy. In 1840, from a stock of 24,842,841 head of full-grown sheep, 80,000 tons of mutton were produced; in 1873, from 19,700,000 head, the produce was 112,900 tons.

Through the north of France and the centre, the sheep are generally reared for half the year in the open air in the breeding districts, but they are taken up every night. When put up to fat, they never go out at all; and even when not fatting they are kept in in winter, or only taken out for a couple of hours for exercise. This confinement has a tendency to render them more delicate, less productive, and more liable to disease, but it saves them from foot-rot. The danger from wolves is one reason for the adoption of this method, and another is the paucity of natural pastures; as the sheep have to be fed on artificial food,

it is more convenient to have them under cover. In some of the largest sheep-growing districts of France it is possible to travel for days together and not see a head.

In the south, where the flocks are larger and grazed upon hilly ranges somewhat like our downs, or on stony plains like the Crau, which feeds 400,000 sheep during the spring, though not a blade of herbage can be seen, or on salt-marshes like the Camargue, there is no shelter, but the sheep are folded at night in walled inclosures, and protected by large dogs.

The mutton supply for French consumption is much below the wants of the country, the importations exceeding the exportations by over 1,000,000 head, and the balance of money-cost exceeding £2,000,000; one-third of the number, however, though certainly not one-third of the cost, is supplied by lean stock from Algiers, the numbers being over 300,000; the remainder is chiefly in fat sheep from Germany. This should not be. France in every way is so suitable a country for sheep, that she ought not only fully to supply her own wants, but have a surplus for the English market.

Mutton is not generally eaten in France by the working-classes—the peasants, indeed, in most parts will not touch it; and if offered to servants in many country households, it is often refused. Outside the towns there is a very small consumption of mutton. Of the meat eaten in France, 55 per cent. is from horned cattle, about 30 per cent. is pork, and only 13 per cent. mutton.

Noxious Insects.

Insects of various kinds, in their various stages of development, are the plague of the French farmers. The phylloxera destroys thousands of acres of his vineyards, caterpillars innumerable eat up his fruit, the field mouse empties his corn-stacks, the grub of the cockchafer ruins his grass and corn, the cockchafer himself strips his plantations bare of leaves. Frost and a mysterious disease has reduced the yield of silk from £5,000,000, yearly to less than £500,000. The phylloxera and the silkworm disease are new enemies, but the others are of old date. The reputed destruction of small birds is supposed to have allowed the evil to increase, and this may to some extent be true, but the damage was great before the Revolution, when none but the privileged were allowed to possess a gun, and the country swarmed with feathered game; nor is it true now that France is so bare of birds as is commonly supposed; complaints about the injury done by rooks are loud in some parts of the country, though they have their friends. In Sologne M. Goffart says he has frequently lost one-third, sometimes one-half, his Indian corn, eaten up by rooks, magpies, wood-pigeons, doves, &c., which swarm over the country wherever there are a few woods to shelter them. In the Beauce forty magpies in a flock are common enough, in Limousin the air is at times darkened by flights of wood-pigeons. A decree of the 26th January, 1796, renewed on the 25th February, 1859, orders that the webs of caterpillars should be destroyed before the 20th January in each year. Landowners are to see to their destruction on lands used

by themselves; farmers and tenants on those they hire; and public authorities on public lands. The branches of shrubs and trees which have the webs of these insects are to be carefully cut off and burned. This order is not always attended to, and the préfets of the departments have often to call the attention of those interested to its due fulfilment.

Cock-chafer.

The grub of the cockchafer seems to be the most destructive of these insects to the corn-farmer, and the evidence of its enormous abundance, and the injury it causes, appears somewhat startling; it is, however, unimpeachable.

In the department of Seine et Oise, a country of large farms, no produce escapes it; the grass in the meadows, the corn in the fields, the smallest vegetable in the kitchen-garden, are often wholly destroyed by the grub; the fully-developed cockchafer strips bare the forest-trees, so as to cause them to present in summer time the appearance of winter. The Forest of Marly, to the extent of seven or eight miles and to the depth of 100 yards, has often been so stripped.

A piece of ground of three-quarters of an acre, near Versailles, was turned up three times with 72 shallow furrows; after the first ploughing 300 grubs were collected from each furrow, after the second 250, and after the third 50, making 600 for each furrow, or a total of 43,200 for the whole piece; three to four thousand more were certainly left between the furrows, which would bring the total quantity to over 60,000 grubs per acre.

In the Pas de Calais, in 1868, the Marquis d'Havrincourt paid one penny per litre (1¾ pints) for collecting cockchafers; he received 870 gallons; with them he made a compost with lime, which he used as manure, not, however, with much success; but in 1871 he paid half that price, and received nearly 3,500 gallons from two communes; the cockchafers were mixed with sulphuric acid, which produced very good results on the land, without any other manure.

The number of cockchafers in a gallon is 1,600, which for the 3,500 gallons makes a total of 5,600,000 cockchafers destroyed in these two communes alone; and they would have produced 60,000,000 grubs. This destruction was to a great extent effective, for in 1874, the year in which these grubs of 1871 would have developed themselves into full-grown cockchafers, only 1,122 gallons were collected.

On a large model farm near Alençon, in Normandy, 800 gallons were collected in the spring of 1871; and the proprietor has two poultry-houses on wheels, each capable of holding from 100 to 150 fowls, which are taken into the fields when they are ploughed in the spring. Newly-ploughed land at this season is sometimes quite white with the grub.

In the commune of Hesdin l'Abbé, in the Pas de Calais, nine pupils in the public school collected 220 gallons of cockchafers in 1874.

Experiments have been made in feeding pigs upon cockchafers, which show that it is a profitable use to make of them; they are killed with boiling water,

dried, and kept in barrels, and given out in the winter with barley-meal. This treatment, however, has got no farther than an experiment at present.

These are a few instances of the enormous plague of cockchafers and their grubs, and the plague is very general in suitable localities—that is, in countries where there is a certain amount of wood or forest; in quite open countries, or in situations with a north aspect, the same cause of complaint does not exist.

Mice.

The ravages of field mice are as injurious in some districts as those of cockchafers in others. They attack the fields of newly-sown grain and the ripened corn, cutting the stalks with their teeth to bring down the ear; they lodge themselves in the sheaves, and so are carried to the stack-yard or the barn; they can often be heard cracking the corn on passing near the stacks; if the corn be not thrashed they will soon leave nothing but chaff; throughout the West of France the farmers are obliged to thrash soon after harvest for fear of the loss these animals would cause. Traps are laid for them of jars half filled with water placed in trenches, into which the mice fall. One farmer found 263 mice so caught in one night, and in one commune as much as 7 cwt. of phosphorus paste has been used to destroy them in a single season.

Public Notice.

A board with instructions, of which the following is a translation, has been put up in every rural commune in France:—

"This board is placed under the protection of the common sense and honesty of the public.

"Hedgehog. Lives upon mice, snails, and wireworms—animals injurious to agriculture. Don't kill a hedgehog.

"Toad. Helps agriculture; destroys twenty to thirty insects hourly. Don't kill toads.

"Mole. Destroys wireworms, larvæ, and insects injurious to the farmer. No trace of vegetables is ever found in his stomach; does more good than harm. Don't kill moles.

"Cockchafer and his larvæ; deadly enemy to farmers; lays 70 to 100 eggs. Kill the cockchafer.

"Birds. Each department of France loses yearly many millions of francs by the injury done by insects. Birds are the only enemies capable of battling with them victoriously; they are great helps to farmers. Children, don't take birds' nests."

Flies. Flies are great tormentors, but less so than would be supposed from the quantity seen upon the cattle. The legs of horses and cattle are black with them, but except for an occasional stamp no notice seems taken of them. They vary in different districts, and it would appear that the animals in the same district get used to them, but cannot stand the attacks of stranger flies. Moved from one district to another covered with flies, they are patient enough, but become wild when attacked by a single fly of a sort to which they have not been accustomed, and the imported flies moving on to the cattle in the district to which they have been brought, have the same effect upon the native cattle that the native flies have on the imported cattle.

Wild Boars. For some years past wild boars have greatly increased in the woods in France, which are very thick,

and the orders for their destruction issued by the authorities are very imperfectly obeyed. A general battue is ordered, but as game-preservers do not care to have their coverts disturbed, there are always some places where the boars can take refuge without any

WILD BOAR AT BAY.

danger of being molested. Fields near woods are overrun every night, and this year (1874) many crops in Seine-et-Oise and Seine-et-Marne have been so injured, that they have been harvested more for the sake of clearing the ground than for the value of the produce. A farmer writes in 1876 from the department of the Vosges, that the boars do not confine themselves to destroying crops near forests, but they often go to fields far from

the woods. It has got to such a pitch, that it is only by watching all night that he and many others have been able to save a part of their crops. Now that the cold weather is coming on, this occupation will cease to be possible, and the autumn corn will be destroyed, if sown; it would be wiser not to sow it. No one seems to try and destroy these animals; the law which permits owners to do so when they are found on their land is a ridiculous nullity. Unless some serious steps are taken to kill the boars down, scores of farms must be given up.

It is not wholly in such wild countries as the Vosges that boars are numerous; in populous Normandy they are to be found in some quantities. In October, 1876, a band of a dozen charged down the high street of Bernay, a town of 7,000 inhabitants, while at the same moment another band crossed the open country from one forest to another. In the same year they were reported as visiting the villages in Perigord in troops.

A landowner had to take a farm off the hands of a tenant, in consequence of the continual destruction of the crops by wild boars. He makes a complaint to the préfet, who does not reply; on a second complaint being forwarded, an answer comes to say that a general battue for the destruction of the wild boars has been ordered to be organised. The proprietor writes to the official master of wolfhounds, whose duty it is to superintend the battue; he also communicates with several members of the council of the department, and with the mayors of the communes in which the battue

is to take place. The master of the wolfhounds takes no notice of the communication; the members of the council speak to the préfet, who replies that he has done his part in ordering the battue; the mayors say they cannot move without the master of the wolfhounds, who, on being applied to again, refers the applicant back to the préfet, and states that when an order, duly signed by that authority, shall have been served upon him, he will give orders to the official forester, who will see to the execution of the order. The landowner, not caring to be beaten, writes again to every one all round; the master of the wolfhounds preserves a discreet silence, and the only answer given is by one of the council, who says that he gave up a pack of boarhounds that he had formed, in consequence of the many difficulties thrown in his way when boar-hunting. In the end, no battue took place; and the boars continue their ravages without let or hindrance. This example of how not to do the work required occurred in the district in which are situated the château and large forests of Baron Rothschild, in Seine-et-Marne, and in a country where game is largely preserved, and is a confirmation of the opinion that as long as the destruction of animals which give sport is left in the hands of "true sportsmen"—that is, of those who enjoy the killing of animals for the sake of sport—it is absurd to expect that the destruction will take place.

Game.

The climate and soil of France are very suitable for game, which breeds largely. Where the holdings are

very small and population thick, game cannot exist, but everywhere else there is an abundance. In any open country, called in France "la plaine," partridges breed and rear large coveys. Many hundreds of nests are lost yearly from the hen bird being destroyed, or disturbed, in the small patches of clover or lucerne where she has her nest. A keeper in Beauce has stated that he has lost as many as 1,100 nests in one season when cover was scarce and the lucerne patches most resorted to for nests.

The shooting is open to any one, unless notice is put up that it is reserved, such notice being indicated by a wisp of straw or a placard, and in the open country and on unpreserved land it is easy enough for one gun to get from ten up to twenty brace in a morning's shooting, and in the first days of the season in a good game country, such as La Beauce. This chance does not last long; within a week the birds pack, or are driven to the preserved grounds, and from that time no good shooting can be got except where there is cover, and where the ground is preserved. In these latter cases the shooting is always good, that is, for partridges, quail, hares, and rabbits.

Pheasants are to some extent artificially reared, though perhaps less so than in England. Once turned down in suitable places, and kept from being disturbed, they breed very freely; but where a good head of game is wanted the same pains must be taken as in England. There seems more fancy in the rearing of pheasants in France, and party-coloured birds are more common than

with us. Each country house with a domain has a pheasantry, into which are introduced birds from India, obtained at the Jardin d'Acclimatation at Paris, and it is no uncommon thing in a preserve to see a bird rise with a tail a yard long. Good shooting lets at a high rate. An advertisement in August, 1877, offers the Chasse d'Ecoublay, Seine-et-Marne, two hours distant from Paris, in two lots—one of 670 acres for £240, which is something like 7s. per acre, and the other of 487 acres for £120, which is 5s. per acre. It is true that the advertisement states that a less price might be taken, but this must be somewhere about the value. At the same time the shooting at Grignon, near Versailles, was in the market, consisting of 550 acres, surrounded by a stone wall; £480 was offered for this, which is not far from £1 per acre, and it was even rumoured that £800 had been offered! In these cases there surely must have been a large number of pheasants reared on purpose. Any way, these examples show the value of shooting in France.

North of the Loire and through the centre of France the bird we call the French partridge is fully as scarce as it is in England,—indeed, it is not known there—it is only found quite in the south.

The French game laws are very strict, and the quantity of game is a great grievance to the farmers in many districts; the chief complaint is against rabbits.

"The exaggerated increase of game has become in some departments the greatest curse of agriculture. The poor farmers have often made bitter complaint

of the damage done by the voracity of rabbits; they have even instituted law proceedings, but their complaints are never attended to, and their law proceedings have rarely done them any good.

"The law of the 3rd May, 1844, was avowedly passed to favour the increase of game. This law makes it almost impossible for the farmers to get rid of their unwelcome guests—the rabbits. Shooting and hunting rabbits only are permitted, and experience has shown that these two methods are wholly insufficient to keep them down; ferrets and nets, it is true, are authorised, but they can only be made use of during the daytime. By the same law the préfets can, with the sanction of the council of the department, declare what animals are to be considered injurious, and how and when they may be destroyed; but in spite of the ardent love of agriculture expressed by the préfets, they have not succeeded in destroying the evil, which is daily increasing.

"In the present state of the law, the courts can seldom protect the farmer. Sportsmen, reverencing deeply the law when it is favourable to them, stand no nonsense when it is against them, and profess unmitigated contempt for the insignificant people who are impertinent enough to haul their powerful neighbours before the courts. Numerous cases have been decided to the effect that rabbits existing in woods where they have not been turned down by the owner are to be considered as wild animals, for whose proceedings the owner of the wood is not responsible,

except under those exceptional circumstances where it can be shown that the damage was owing to his fault, his imprudence, or his neglect. This state of the law being brought before the Chamber of Deputies, the Committee of the Chamber has reported in favour of reverting to the law of 1790, by which every owner, occupier, or farmer, was allowed to destroy, at any season and by any means, any kind of game or wild animal damaging his crops." (*Victor Emion, avocat, in the "Echo Agricole."*)

Rabbits.

Two decisions given in the courts in January and February, 1877, establish the rule that the owner of a wood is in no way liable for damage done by rabbits if he has not encouraged their multiplication. In one case it was shown that the locality was very suitable for rabbits, and that they had always existed in large numbers; the owner had shot them down, and had even invited his neighbours to kill them. In the other case, the owner shot very freely, and it was not proved that if the neighbours had assisted they would have reduced the quantity. In both these cases, though the damage was serious, the owner of the wood gained his verdict. In another case, in December, 1876, the shooting of the owner was evidently for his own amusement, with no attempt to keep down rabbits, and though the damage done was small, he had to pay it, as "he had omitted to use the most efficacious means to destroy them, or had employed those means insufficiently."

An action was brought for damage caused by

rabbits, and a verdict for £850 was obtained. It was proved that the battues did not begin before November, 1875, and were not frequent enough. This judgment was appealed against, and the superior court reversed it (January, 1877), holding that the farmers should have taken steps to have battues ordered by the préfet and by the council of the department, and as they had not done so they must submit to the consequences of their neglect. The sufferers must have known, either by their own experience or that of others, that the application to the authorities for a battue would have led to a loss of time and temper, and that the battues would most certainly never have been ordered soon enough to be of any use.

A strong instance of the stringency of the game-laws in France was given at Cambrai, in May, 1877. A man walking in his garden saw a partridge weak and hardly able to fly. It dropped in his neighbour's garden, and with that neighbour's permission he followed and took the bird. Finding it too weak to put into his aviary, and too poor to be worth cooking, he let it go. He was summoned by a gamekeeper for taking game without a licence, and was condemned in a penalty of £2 and costs.

In the department of the Oise there is a society for the prosecution of poachers. During the season 1875–1876, it gave 411 rewards, amounting to £250, and three medals, to keepers who had obtained sixty convictions, resulting in fines reaching £550, and in sentences of imprisonment amounting to twenty-one

years. Since the foundation of the society in 1866, it has given 2,113 rewards, amounting to £2,000, and thirty-one medals. Poaching, nevertheless, flourishes side by side with this society.

Among the wild animals to be found in France, such as the bear, the fox, the badger, the otter, &c., the wolf is the one whose destruction is most essential; the annual loss from sheep devoured, expense of watching, cost of buildings in which sheep are confined on his account, is something enormous. Wolves.

The Comte d'Esterno, who has advocated most strongly the destruction of wolves, calculates that in the spring there are only about 2,000 wolves in all France; and the grounds for this calculation are fairly sound. There is no registry of births, and only an imperfect one of deaths; but the average number upon which head-money is claimed for destroying them is 1,754. Of these, 818 are entered as young wolves—that is, wolves born in spring and killed before September has expired. Of the 936 older wolves killed after this date, 700 were certainly littered in the previous spring; almost every litter is known, and it is reckoned that there are 500 that produce an average of five pups, making 2,500 young wolves in all; these 500 litters account for 1,000 males and females, the other 1,000, to make up the 2,000 stated to exist, consist of surplus old males, who exceed females by 11 per cent.—that is, 110—and of young wolves unmated, and of old females, or of those which have been barren. The

700 young wolves killed during the winter are those which provide the masters of wolfhounds with sport; who either can't kill the old dog wolves, or won't, and who do not care to kill the dam or too many of the young ones. It would be as reasonable to expect that a M.F.H. should kill all the foxes in his country as to think that a master of wolfhounds should utterly exterminate that which gives him his position and the pleasure of enjoying the sport he loves. Each litter is routed out, and some of the young are killed, but not the mother, and enough young are left to keep up the breed, and to console the dam so that she may not be too much disgusted with the country.

These 2,000 wolves each destroy at least £40 worth of domestic animals yearly, a total value of £80,000. But this is only a very small proportion of the damage they cause; they may only worry 30,000 sheep, but they compel the watching and sheltering of the 30,000,000 sheep of France—at least so states M. d'Esterno, but with some exaggeration, as the watching and housing of sheep is practised in the large sheep-producing countries of La Beauce, Brie, Picardy, and Artois, where wolves are never heard of, and they would still be watched and housed in Berri and elsewhere if every wolf in France were killed at once. The absence of natural pastures, and the necessity thus caused of bringing food to the sheep, makes it more convenient to have the sheep in sheds, and the open nature of a good deal of the land where the sheep are taken out to pasture on the stubble, requires the

watching to prevent wandering and trespassing upon growing crops. Allowing for all this, the wolves are a nuisance, and a very expensive one; the shelter in most places would be of a far less costly character, if shelter only, and not protection, were required, and much of the watching could be dispensed with by the use of hurdles.

The destruction of this paltry number of animals would be neither very troublesome nor very costly, and it might be undertaken piecemeal; for wolves have this peculiarity, that they rarely stray beyond their own locality, so that it might be quite possible to destroy all the wolves in a given district without that district being invaded by those from the neighbourhood. The vast mass of forests about Compiègne, consisting of some 45,000 acres, is absolutely free from wolves, though formerly they abounded there; they were all killed down, and no others have come in from other districts. A small commune at Mesvre, near Autun, was infested with them fifty years ago, when a dozen good shots destroyed the whole, and for eighteen years not a wolf showed himself. At this moment (January, 1876) a dead horse may be seen in the forest of Morvand, near Lucenay L'Evêque. The carcase has been there for forty days, in a locality once the rendezvous of all the wolves of the country; it has remained untouched, although the snow has driven the wolves from the high grounds, and though many have been seen within seven or eight miles, and though a sheep was carried off from an adjoining parish.

The want of will, or want of ability, on the part of the official masters of hounds to destroy wolves has caused an order to be addressed to the préfets of the departments by the Minister of the Interior, dated the 7th of December, 1875, in which, after observing that he has received complaints from several departments of the considerable injury done by wolves, and notably that in one spot, out of a flock of 397 sheep, seventy-two were worried to death and twenty-eight wholly carried off, he points out that it is by no means necessary that the authority of these official M. W. H's. should be obtained to order a general battue—it is quite sufficient that such an assembly should be ordered by the préfet, and organised by the mayor of the commune, or by the officer of the gendarmes.

But M. de Cherville, a M.W.H. and a thorough sportsman, doubts very much whether these battues ordered by the préfet or the mayor are likely to be very effective. His own experience leads him to quite a contrary opinion. A great battue is arranged, thirty or forty wild boars or wolves come within shot of the sportsman, only one is killed; the wounded, according to report, are to be counted by dozens, but they seem "not a penny the worse"—they never turn up. "Is it, he says, "worth while to bring out three or four hundred good fellows for such a miserable result? One man who knows his business, with a couple of good dogs, would have given a better account. Wolves are more difficult to approach than boars, and unless a battue against

them be most carefully managed, it will fail nine times out of ten."

"We Frenchmen want that instinct of discipline so necessary on these occasions. The firearms with which the men provide themselves are but a small matter, though bad enough; it is the spirit of insubordination in the troops furnished by the mayor which must be seen to be appreciated. The hunt is but a pretext; the good fellows who come to the meet think much less of the wolf than of amusing themselves. In vain the poor M.W.H. begs them to put a stop to their fooleries—the thunder of heaven would not be attended to; every one has his advice to give, and when at last the men are placed, as they are too far from each other to talk, some take to smoking, the majority bang away at everything that comes along, from a stag to a thrush. There is lead for everything, the beaters included—specially, indeed, for them; the only thing that escapes without a fair share of projectiles is the wolf himself, who, warned of the reception intended for him by the unwonted stir in the neighbourhood, has long ago shown a clean pair of heels." A battue is, indeed, often only a legalised poaching affair, as those who attend may on that day shoot without a gun-licence.

Those who suffer from wolves esteem M. d'Esterno's calculation of the numbers to be far under the mark. In the department of the Dordogne, in January, 1876, there seems almost a panic about the wolves. "For centuries, probably, we have never had such an invasion.

Thirty have been killed within a very short space of time, and we hear daily of others; last week three were killed and a fourth wounded in a space of three square leagues, without stopping the depredations in that locality. They attack not only animals and poultry, but even men. At half-past eight one morning, in broad daylight, an enormous wolf attacked a man within forty yards of his own house; later on, the same wolf knocked down and wounded severely two old men; towards midday he attacked and wounded two others. He was eventually shot, and proved, on measurement, to be over five feet from the tip of the nose to the stump of the tail. The préfet applied to the Government for a gold medal to be given to the destroyer, and it was proposed that a subscription should be opened to give the man a testimonial." It is supposed this wolf was mad, as two of the persons he had bitten had died, and the three others were not likely to live.

Man-eating wolves have existed in France in all times. In 1439 fourteen people were eaten by wolves in Paris between Montmartre and the Gate of St. Antoine, which was then, however, outside the walls of Paris; in 1660 the Marquis de Beauveau states that 315 wolves were killed within a range of eight miles round Nancy; in the early days of Louis XIV. it is reported that 300 people were eaten by wolves in the one province of the Gatinais. There may be exaggeration in these accounts; but from 1763 to 1771 man-eating wolves undoubtedly were far from uncommon over a large part of France. In 1764 one brute,

commonly known as the "wild beast of the Gevaudan, created a panic over several provinces. He had killed outright forty-six persons, and wounded seventy-one others, chiefly women and girls, and the battues organised to destroy him were upon a scale unequalled either before or since. The inhabitants of twenty, forty, and even 100 parishes united to compass his destruction; and the Bishop of Mende ordered public prayers, and exposed the host. This animal escaped all attempts to destroy him for eighteen months, when he was at last killed, on the 10th of September, 1765, by the king's wolfhounds, which were sent from Paris. When dead he weighed 150 lbs.; he was 32 inches high, 5 feet 9 inches long, and had forty teeth, the usual number being twenty-six. In 1816 and 1817 two wolves on the banks of the Saone, near Dijon, ate thirty-four people in a year and a half; people are still (1875) living who saw them. M. d'Esterno says he has weighed about forty wolves, but never found one over 78 lbs., the smallest being 54 lbs., and the average 65 lbs. They were, however, wolves from a poor mountainous district, and though 150 lbs. seems a monstrous weight, it may be true that wolves have reached that.

There are, no doubt, more wolves in France now than there were some years ago. In 1870 all shooting was prohibited, and in 1871 it had not been taken up. Two years' freedom from molestation allowed them to increase, and they have increased in numbers and in ferocity. The formalities necessary to go through before they can be destroyed after they appear, give them time to escape

pursuit, and the rewards for destroying them are too small to make their destruction a profitable occupation. 18 francs for a female in young, 15 for one barren, 12 francs for a full-grown male wolf, and 6 francs for a young one, are ridiculously low; a man will not lie out all night for so small a payment, and even from these 1 franc is deducted for the stamped receipt. The Agricultural Society has recommended 50 francs for a bitch in pup, 40 for a bitch not in pup, 20 for a young wolf, and 150 for a man-eater. The Minister of Agriculture has advised the adoption of this rule, but the Home Minister, with whom lies the decision, has replied by giving a long string of authorities to show that the battues of wolves may be organised without applying to the M.W.H. We have seen how inefficient these battues are, and how they may be abused, and the reward now obtainable is too small to induce other means, such as strychnine. A dead horse, in which strychnine would be administered, in itself costs 15 francs. That this method is effectual is shown by the result of the proceedings of a keeper near Dole, who laid a bait with strychnine in the forest of Foullenay, near Chaumergy, in the Jura, and the following morning found five large wolves dead; and on another occasion he found three.

The result of the movement of M. d'Esterno has been that (Nov., 1876) the Home Minister has proposed a change in the law which will permit the destruction of wolves at any time and in any manner without further authority, except by poison, which must be done by arrangement.

The rewards to be increased to £4 for a bitch in pup, £3 3s. for a wolf's head, 32s. for that of a young wolf, and £6 for a wolf which has attacked human beings. The battues can be ordered at any time by the préfets, and will be placed under the direction of the surveyors of the forests, who will select the people to assist in them. This is a virtual suppression of the office of master of wolfhounds.

Hamerton, in his "Sylvan Year," 1876, gives the following account of wolves in Burgundy:—

"The neighbourhood of our valley was frequently visited by wild boars, which of late years had been more numerous than ever, whilst the wolves were becoming rarer. The peasants affirm that this is an inevitable law, that the wolf and the wild boar always increase or diminish inversely. Why this is so, I have not yet been able to ascertain, for these animals do not make war upon each other; but there may be a mutual jealousy or dislike. However, although the wolves may be rarer in the forest than they have been in former years, there are still quite enough of them to occupy the attention of the shepherds on its outskirts. About the middle of December I happened to witness an incident which is not very rare. A few sheep were grazing quietly in a little sloping pasture along the wood's edge, when an animal first crept out cautiously, and then rushed at the nearest sheep. That animal was a wolf, and his immense strength was proved by his manner of dealing with his victim. He got his head under the sheep's belly, and threw her weight upon his own neck, her four feet

beating the air. Holding her quite firmly in this position with his teeth, the wolf had strength enough to gallop very rapidly up the steep slope back to the impenetrable density of the copsewood, where it was of no use trying

WOLF CARRYING OFF A SHEEP.

to follow him. Now, the wolf in this country is not a very large animal, and a feat like this implies a degree of muscular and constitutional power which is relatively enormous. I could not help admiring the courage of the little shepherdess whose flock had been thus suddenly invaded. She was very much irritated at the impudence of the wolf, but not alarmed by his ferocity, and she threw her wooden shoe after him as an expression of most earnest though inefficacious hostility, uttering at the same time sentiments of her own in *patois* of extraordinary volubility, which were certainly not benedictions. The girl's father told me afterwards that on one occasion she had actually beaten a wolf till he retreated; and

there are so many anecdotes of a similar character that I infer a certain human influence over these animals, which, as they are of canine race, may have something of canine deference for humanity."

A pamphlet, published at St. Petersburg, from which some extracts were given in the *Times* of August 24, 1876, relates some curious instances of the voracity of wolves and their tenacity of life. In two or three hours, it states, a pair of wolves will eat the half of a horse weighing 7 cwt., they themselves not weighing more than 1 cwt.

A wolf fell into a trap and lost its right foot; on three legs it rushed out of the wood and seized a sucking pig tied by hunters to the rear of a sledge; it was hit by a bullet in the left leg, but ran on for fourteen miles, and was killed running.

They have a dangerous trick of appearing to be dead. A peasant found a wolf apparently dead, he beat him with a cudgel and took him home for the sake of his skin. In the night he heard a noise, and saw the wolf on the table, who flew at the man's throat and killed him. In forty-five Russian governments 741,000 head of cattle were destroyed in the year 1873 by wolves, and they were valued at more than £1,000,000. The number of wolves in Russia cannot be less than 170,000; and they eat 200,000,000 head of feathered game alone. In the one government of Kalouga they killed in the above year 8,200 geese, and more than 2,000 dogs. The annual loss to the country from wolves is estimated to average quite £600,000, besides human lives, of which 200 are taken annually.

NORMANDY.

"ALL the arable part of Normandy is a rich, friable, sandy loam, to a great depth; that from Bernay to Elbœuf can scarcely be exceeded; four to five feet deep, of a reddish brown loam on a chalk bottom and without a stone. As to the pastures of the same province, we have, I believe, nothing in England or Ireland equal to them; I hold the Vale of Limerick to be inferior. As to arable land, I did not see a well cultivated acre in the whole province. You find everywhere either a dead and useless fallow, or else the fields so neglected, run out, and covered with weeds, that there can be no crop proportioned to the soil."—ARTHUR YOUNG, 1788.

"When, in the last century, a man who united great powers of observation with a perfect knowledge of agriculture, Arthur Young, visited this country, he judged severely the farming in Calvados. He little thought how largely Great Britain would become dependent on this same country for much of its food."—DROUYN DE L'HUYS.

Normandy.

	Population Returns, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
Manche	527,234	1,482,095	895,052	261,500	82,625	48,182	90,743	258,910	260,461	110,296
Calvados ...	444,998	1,380,180	769,570	257,500	78,047	90,377	60,918	261,887	128,103	72,168
Eure	372,394	1,489,410	947,627	111,025	3,992	274,720	52,493	126,017	481,860	55,879
Orne	394,408	1,524,320	877,753	207,827	60,737	194,440	56,276	183,612	145,339	43,139
	1,739,134	6,876,005	3,490,002	837,852	225,401	607,719	260,430	830,426	1,015,763	281,482

	Population.	
	Collected.	Scattered.
Manche	253,193	274,041
Calvados ...	241,462	203,536
Eure	225,540	146,854
Orne	153,844	240,564
	874,039	864,995

	Corn Crops in Acres. Returns, 1876.
Wheat... ...	1,000,149
Mixed	76,790
Rye	79,650
Barley	290,817
Buckwheat ...	251,230
Oats	478,352
	2,176,988
Potatoes ...	46,935

	Horse Stock.	
	Mares.	Under 3 yrs.
Manche ...	47,811	25,893
Calvados ...	28,589	13,076
Eure	8,810	8,108
Orne	26,748	17,363
	111,958	64,440

Population per square mile.

Normandy ... 189
France 175

Normandy ... 19·78 urban ... 80·22 rural.
France ... ... 31·06 „ ... 68·94 „

Decrease of population from 1866 to 1872.

Normandy ... 4·48
France ... ... 1·29
Manche ... 5·17, the greatest in France.

Proportion of population who can neither read nor write, above six years old.

Normandy ... 21·5 per °/₀.
France ... ... 30·8 „

It seems quite natural to begin any attempt at the description of the farming of France with Normandy, so like in many respects to England; indeed, M. de Lavergne says, "Normandy is England," and Freeman, "Nowhere out of the old Saxon and Frisian lands can we find another portion of continental Europe which is so truly a brother-land of our own as the country of Le Bessin in Normandy. The blood of the inhabitants of Le Bessin must be composed of nearly the same elements, and in nearly the same proportions, as the blood of the inhabitants of the Danish districts of England. The kindred speech is gone, but everything else remains. The land is decidedly not French; men, beasts, everything, are distinctly of a grander and better type than their fellows in the mere French districts; the general aspect of the land, its fields, its hedges, all have an English look." The similarity of race should hardly have been limited to the district of Le Bessin, as the Côtentin is as Teutonic as any part of Normandy. The Côtentin is most Danish, Le Bessin most Saxon, and both of them were longer in becoming French than the other parts of the duchy; William had to conquer them both, which he did with the help of the French king before he conquered England, but he found his strongest support in the English enterprise from among the people of these two districts, and no names among his followers are more prominent than those of Geoffrey, Bishop of Coutances, the capital of the Côtentin, who became Earl of Northumberland, and Odo, Bishop of Bayeux, the capital of the Bessin, who was Earl of Kent.

Here and through Normandy owners live on their properties: the houses and cottages are in good repair and tidy, the hedges well trimmed, the gates in good order, and the roads excellent; in this latter respect the comparison is by no means in favour of our own country. There are more labourers regularly employed in farm-work, and there are fewer poor, than in any other part of France, and wages are as high as anywhere in England. The people have the reputation of extreme prudence; the families are among the smallest in France; the population has at all times increased less rapidly than elsewhere, differing in this respect from Englishmen, and also from the Normans who emigrated to Canada two centuries ago: it is known that eighty families went to Canada from the Norman village of Touronne, and it is estimated that these eighty families have now 300,000 descendants. It is remarkable that the population of Normandy has, in the face of continued prosperity, decreased more rapidly than elsewhere in France, for whereas the decrease through France between the census of 1872 and the previous one of 1866 was 1·29 per cent., in Normandy it was 4·48, higher than that of any other province; it is probable that some of this decrease may be owing to the cessation of works at Cherbourg.

Population. The population of the four Norman departments, Manche, Calvados, Orne, and Eure (Seine Inférieure is not included, because the land and farming are more like those in Picardy) is 189 to the square mile, very

nearly four acres to each inhabitant, and amounts to 1,739,034; it is returned as being half living collected together, and half scattered about the country—a very different state of things to that of most parts of France, where the isolated dwellings are few, in some places to the amount of only one-tenth, which gives the country a bare and desolate appearance. Of this population one-fifth is returned as urban, and four-fifths as rural, indicating a paucity of towns and an abundance of villages; indeed, there are only fourteen towns with more than 6,000 inhabitants. It must not be supposed, however, that four-fifths of the people are wholly employed in rural occupations: manufactures of various kinds are carried on in the cottages in small villages, and even in the farm-houses; a large half of the inhabitants is engaged in industrial occupations. M. de Lavergne says that if he were called upon to name the happiest part of France, he should, without hesitation, name Normandy.

Education.

In point of education Normandy compares favourably with other provinces, the number of those above six years of age who can neither read nor write being 21½ per cent.; the average of France is 30¾ per cent.

Land.

These four departments contain nearly 7,000,000 acres, of which more than half are arable; nearly 1,000,000 permanent grass, mostly in Calvados and Orne; over 200,000 acres waste, the half of which is in Manche; and 600,000 acres wood, half being in Eure.

In the open country where the land is stiff, the farms are large; they are very small in the valleys, and on the slopes of the hills, and where the land is light. In the plain of Neubourg, in Eure, the holdings are very small, and the properties much divided; this is no new thing, they have been so for centuries. This plain is very badly provided with water, but the soil is very rich, and most highly cultivated.

The Norman farmers carry the "let well alone" principle very far, especially as regards improved instruments; at the show at Caen, in August, 1875, M. Drouyn de l'Huys, the President of the Société des Agriculteurs de France, felt called upon to express his regret at not seeing in the Norman farms better examples of the "artillery of agriculture." A large half of the soil of Normandy is of poor quality, but where it is good, "a finer soil than this province possesses in general can hardly be seen. Some of the finest arable land in the world . . . thirty-seven bushels of wheat to the acre, in 1790." On this land there is no special cultivation, except that of rape for crushing, of which the area in Calvados, 80,000 acres, exceeds that of any other department. Artificial grasses, more especially trifolium, are largely grown, and the crops of all kinds are good, but turnips do not seem to succeed, nor is the land under sugar-beet extensive, but the pride of Normandy is in its rich pastures. "Nothing can be said too great of the rich pasturages which are applied to fattening bullocks to the highest advantage. The grazing lands of the Pays d'Auge, of which the valley of Corbon is the

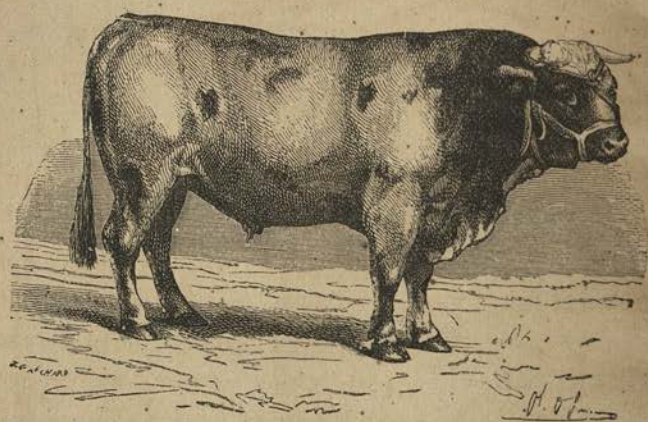
most famous, class with the finest in the world. As to the pastures of the same province, we have, I believe, nothing either in England or Ireland equal to them; I hold the Vale of Limerick to be inferior." (*Young.*)

Over 1,000,000 sheep, 830,000 head of cattle, 260,500 horses stock this fine country. Stock.

Normandy is not a great sheep-producing country. Half of the total number are in the department of Eure, and they are improving by crossing with Leicesters, and, to some extent, with Downs. The merino crosses are not in favour; indeed, the same may be said of all Normandy, as merinos do not succeed near the sea, and, with the exception of those fed upon the salt-marshes, Normandy has nothing to boast of in the way of its sheep. It makes the most, however, of that which is a peculiarity, and mutton from the salt-marshes of Normandy is exhibited in the butchers' shops of Paris with much the same display as that from the Forest of Clun is in London. The description of the sheep exhibited at a show at St. Lo by a well-informed writer is far from flattering:—"They are as full of faults as they can be: high on their legs, narrow-chested, angular, bony;" but he has hopes for the future, as he says the Leicesters are destined to replace the old race, so faulty in every respect. Sheep.

The cattle are almost wholly the native breed, called Norman, or Côtentin, and have a higher reputation Cattle.

than any in France for their production of butter; no butter in Europe, indeed, makes so high a price as that produced from the milk of these Norman cows.



NORMAN BULL.

The colour is generally brindled, black or red. The old, unimproved breed were long in the leg, heavy about the neck and shoulders, flat-sided, long in the body, and narrow-chested. The females are better-looking than the males, and now and then one is shown which seems an almost perfect animal, short in the leg, small in the bone, fleshy, and yet a good milker; but such an animal is seldom seen, and certainly would have some small infusion, but very small, of shorthorn blood. The breeders generally are most unwilling to admit the smallest cross of the shorthorn, but it has been partially introduced by some, who maintain that the cross diminishes the bone, increases the flesh, and does not decrease the milk; it has also the great advantage of

NORMAN COW—CÔTENTIN BREED.

encouraging early maturity, the Norman breed not getting into anything like good form under two years, and requiring six before it is properly fit for the butcher. The size which is attained by these oxen at full age is enormous. The fat ox used in the annual procession in Paris was mostly chosen from this breed, and sometimes exceeded 550 stone of 8 lbs., close on 40 cwt. The heaviest beast at the London Cattle Show weighs 25½ cwt. The meat is also considered superior to that of the shorthorn, which is probably true enough. Meat forced by artificial food given to animals who never leave the stall can hardly be as good as that from animals fed upon rich grass, and not forced; and the Norman cattle are always out-of-doors.

In Orne the shorthorn cross is much more common than it is in Calvados or Manche. Orne has no local breed; has not the pastures which enable it to produce the rich butter which makes the fortune of Calvados, nor the reputation which brings buyers from all parts of France for the stock of Manche, whence 1,000 in-calf heifers, and from which department and from Calvados together 270,000 head of cattle, including calves, are sold every year, chiefly for dairy purposes. No French breed of cattle is so largely used out of its own locality as the Norman. Orne has, however, some fine specimens of the cross of the Norman and the shorthorn, but does not equal the produce of the cross of the shorthorn with the breed of Maine; indeed, of all the races with which the cross has been tried, and which have had any amount of fair success, that with the Norman has been

the least successful, and that with the breed of Maine the most.

The attention called to the improvement of stock by the discussion as to the value of shorthorn blood has had the important effect of improving the breed by more careful selection of sires of the same race, and all the stock is better than it was; the framework of bone has diminished, the haunches are more spread, the thighs are thicker, the head is smaller, back and loins are broader and more level; all said to be produced by careful selection. But one cannot help suspecting that it has been assisted by a shorthorn cross, a suspicion energetically denied by the Norman breeders, who insist that the native race requires no external aid to help it to perfection. At the show at Alençon in 1873, the judges disqualified every cow which showed the smallest trace of the shorthorn; whereas at Chartres, in 1877, every head of the 169 entries of Norman stock had certainly some shorthorn blood. The Norman graziers who fatten stock so largely for the Paris market make no complaint of the shorthorn cross, but they draw their supplies of store beasts very largely from Maine and Anjou. A hundred thousand grass-fed beasts leave the fine Norman pastures yearly.

Butter. The hesitation on the part of the farmers to make any change will be understood when we consider the wonderful milk-producing properties of the Côtentin breed. In Le Bessin, near Isigny, there are farms that sell £1,000 worth of butter yearly: the opinion

among the farmers is that the smallest cross of the shorthorn would reduce the yield of milk from twenty quarts a day, which they get now from a newly-calved cow, to fourteen or fifteen. Cattle.

This care in keeping to the purity of the blood is receiving its reward. The exportation of butter from France has increased from 480,000 cwt. in 1872 to 740,000 cwt. in 1874, this last amount representing 218,750,000 gallons of milk, equal to the produce of 400,000 cows giving six quarts of milk a day. The money value of this to the farmer was, in 1872, £2,320,000; in 1874, £3,600,000; in 1876, the export exceeded 800,000 cwts., and was worth very close upon £4,000,000; and this enormous manufacture leaves all the buttermilk, skim-milk, and manure at home for the benefit of the country. This exportation is made to various countries, to Belgium as well as to England, and nearly 3,000 tons go to South America and the West Indies. The total importation into England from all countries was, in 1875, 1,500,000 cwt., of the value of £8,500,000 sterling; in 1876, it was 1,700,000 cwt., value £9,700,000; and has increased to this point from 1,000,000 cwt., value £6,000,000, ten years previously. Of the export in 1876, 600,000 cwt. came to England, so that we draw considerably more than one-third of our foreign butter supply from France. The most important house for this export trade, the commission upon whose business in London is said to be worth £8,000 a year, is managed by a woman, and thoroughly well managed too. The brand at Isigny Butter.

Butter. that makes the highest price is that of M. Demagny: in 1876 his minimum price for salted butter was £7 7s. per cwt., and his maximum, £10 10s., taken at Isigny; his sales during the year reached £160,000, mostly for export to the Brazils. Isigny butter makes 2s. 9d. per lb. retail at Rio Janeiro, which is 3d. per lb. higher than that of its chief competitor, the butter from Denmark; but sometimes the difference in favour of Isigny reaches 9d. per lb. During the same year the lowest price paid at Copenhagen for salted butter for export was £7 2s. 6d. per cwt.; and the highest £8 12s., in both cases for first qualities.

At the show held at Paris yearly, the contest for the "blue riband" of the butter exhibition always rests between that from Isigny, in Calvados, and that from Gournay, in Seine Inférieure, and as the show is always held during the winter, Isigny is always victorious, the fine pastures in Le Bessin enabling the farmers to keep up the flavour. The Isigny men assert that if the contest were held in the height of summer the result would be the same; but, at any rate, the contest would be more close, as the grass at Gournay, which fails in winter, comes nearer to an equality with that of its rival in summer. The open market confirms the opinion of the judges, for whereas, throughout the winter, Isigny butter makes more than 3s. per lb. wholesale by auction at Paris, that from Gournay makes only 2s. In summer Isigny drops to 2s., and Gournay does not get much beyond 1s. 6d. This excess in price may, however, be partly owing to

the name, and it is quite possible that one may be as good as the other at that season; at all events, the gentlemen for Gournay say so; they contend, indeed, that their butter in summer is firmer than that from Isigny, which "runs into oil." At Paris, in 1875, 350 samples of butter were exhibited, and when the fifteen best had been selected, and placed in the order of their merit, one of the judges, to test the delicacy of his palate, turned his back to the table, and had a piece of each of the fifteen presented to him, when he placed the whole fifteen in precisely the same order as had been agreed upon by the judges. Butter

The care in the manufacture at Isigny is something excessive, and much of the superiority of the quality is attributed to this: the hand never touches the butter, it is always beaten up in cloths, the utensils are of marvellous cleanliness, and if a drop of milk or cream falls on the floor it is at once sluiced away.

But a cry comes up from the seat of this fine produce—a cry such as is heard from every manufacture in a time of great activity. There is a shortness of hands to labour, the trade is threatened with ruin from the desertion of the women farm-servants. A craving for a town life draws them from the country. Wages as high as those they can obtain in towns are offered them in vain; the evil has arrived at such a pitch that many farmers have ceased making butter, and turn their fine pastures to the fattening of cattle. The cause of the evil may, perhaps, be found in the decrease of population already noticed. The Normans might be the better

Butter. if they were somewhat less prudent, and if they had more of the Englishman's trust in the power of families to make a living for themselves in a world which seems to want nothing so much as more inhabitants, and to produce more the more it is called upon..

The butter is perfectly made at the dairies, but not salted there, or prepared for exportation. It is taken to the market towns, and there purchased by dealers whose trade it is to send it either in its fresh state, duly made up in small sizes for immediate sale, or slightly salted for later use, or more highly salted for longer preservation or for export. It is sent off in large earthenware jars, or tinned, or in cold weather merely in baskets, the butter being wrapped in cloth. The market during the butter season at one of these towns is a most curious sight, the whole place is yellow with the enormous piles of butter; great lumps, weighing some hundredweights, are placed on stalls, which the dealers visit and taste, and bargain for with the usual noise and huckstering attendant on French trading.

Cheese. Butter is not the only produce which Normandy obtains from its cows; cheese, though to an extent far inferior to its congener, attests to the value of its breed of cattle, and to the richness of its pastures. Le Bessin, at the western extremity of Calvados, is the country of the first; the "Pays d'Auge," at the eastern extremity, "whose grazing-lands are superior to anything we have in England or Ireland," furnish the latter. Several

kinds are produced—the Camembert, Livarol, Pont l'Evêque, and Marolles, named after the localities where they are made; they are all soft and small cheeses. The total value made in the department in 1865 was £107,000; in 1873 it had increased to £180,000. Of this amount Camembert supplies certainly £40,000 worth; and as it is the most important, so it is the most generally known out of its own country, and according to the decision of the jury at the Paris Exhibition in 1874, the most appreciated in it, for it then carried off the Champion Gold Medal against the three other kinds of cheese which had each obtained the gold medal of their classes, viz., the Brie, the Gruyère, and the Coulommiers, and no wonder, as the reporter of the jury says, "it surpasses in delicacy everything that the ingenuity of the cheese manufacturer has been able to invent to flatter the most fastidious palate." In 1875 and in 1876 the Camembert lost its pride of place, the champion medal falling in 1875 to the Roquefort, and in 1876 to the Gruyère, which does not necessarily deprive the Camembert of the merit of being really the most delicate and agreeable cheese that France produces, out of the seventy varieties made in various localities. This cheese was first made at Camembert, in Orne, in which department the makers are still the most numerous; but they are generally on a small scale. There are large manufacturers in Calvados, and one of the largest, as well as one of the largest graziers, is M. Cyrille Paynel, at Mesnil Mauger, near Mezidon. This gentleman farms 500 acres, all grass, at a rent of seventy

Cheese.

Cheese. shillings per acre. His holding consists of seven farms; 130 acres are left for meadowing each year; they are fed off to the first week in May, and then shut up, and he gets an average of a ton of hay to the acre. The milking-cows are from 40 to 50 from the 1st of May to the 15th of September, and from 75 to 100 from the 15th of September to the 1st of May, this being the cheese-making season; there are generally on the farm besides, 40 to 50 cows which are fatting, 20 calves and heifers, 30 oxen, and 30 pigs—18 or 20 of the best heifer-calves are kept each year, the rest are sold at a week old. The fatting stock is all grass-fed, and always out-of-doors, hay being given in the pastures. The dairy stock is all of the Norman breed; that bought for grazing is partly of the Maine breed, much crossed with shorthorn. The cows are milked three times a day, winter and summer; at half-past four in the morning, at mid-day, and at six in the evening.

In 1858, M. Paynel sent 1,242 dozen cheeses to Paris, which sold for £296; in the season 1874–5 he sent 9,090 dozen, which realised about £3,000. The butter and poor cheeses are sold in the neighbourhood, but the butter produce is small compared to that of the cheese, only about 2,500 lbs. being made in 1874–5, realising about £200. The cheese-room is 46 feet long by 18 feet wide, and 800 cheeses can be made in it daily. The whey is wholly used for fatting pigs, of which the stock is doubled during the cheese-making season.

Poultry. Poultry is a considerable source of income to the

small farmers in Normandy, and many of them pay all their rents from their poultry-yard. The fowls are almost exclusively of the Crêvecœur breed in its different varieties. The number of head of poultry in Normandy is 3,500,000 of all kinds; and although the value of the whole is estimated at only £240,000, the annual value of the fowls' eggs alone is £150,000 to the farmer. The average produce of each hen is nearly 100 eggs, and at this rate they will continue to lay for five years, but only about half this quantity is really available for the market. In 1875, England imported nearly 800,000,000 (eight hundred millions) of eggs, valued at more than £2,500,000 including charges, of which France furnished five-sixths; that is, more than 2,000,000 for each day in the year. Our importations of poultry exceed £300,000, most of which comes from France. This supply of eggs and poultry comes to us through the ports of Normandy and Brittany, but it is obtained from all parts of the country, being collected by hucksters. The eggs, when delivered at the warehouses of the packers, are carefully examined; each egg is passed before a gas jet, and every one that is not quite clear is rejected. Eggs of about the same size are always packed together, and this, which implies a selection, is really no trouble, as certain districts always supply small eggs and others large ones. The difference in size arises from the nature of the land, not the breed of the fowl, as the breed is the same all through the country; where the land is good the eggs are large, where it is poor the eggs are small.

Poultry.

Poultry. The excess of production is astonishing when it is considered how large is the home demand, eggs and poultry entering into daily consumption in France far more than in England. Hardly a meal is ever eaten in France at any table, above the very poorest, without eggs or poultry forming part of it; and it is quite credible that Normandy alone furnishes from one to two million head of poultry of various kinds to the Paris market yearly, and yet falls behind the supply from other provinces, besides providing for its own large local consumption. Six millions of eggs are sold weekly in the Paris market—not all for direct consumption; an important portion, indeed, is purely for manufacturing purposes. Many are used in pastry and for glazing ornamental cakes and sweetmeats. One large pastrycook buys as many as two millions in the year for these purposes. A large dealer uses half a million, of which he separates the white from the yolk—the white being sent to the manufacturing districts in the north, and the yolks being employed in dressing skins for gloves. The yolks not required by the pastrycooks are salted down, and find a sale in Belgium. With all this large surplus production, the agricultural writers are continually urging that more attention should be paid to poultry-rearing. They declare that the production might be easily doubled.

Cider. Normandy has no vineyards, but has her compensation in her vast orchards. Cider is the local beverage,

and yields a good profit to the farmer without much cost. A consideration of what the land might do, if cleared of these fruit-trees, would perhaps show that it would be better to grub them up on much of the land they now occupy; but this is hardly likely to be done, the present profit is too easily earned, and the result of the change too uncertain, to render this probable, and it would certainly call for a large immediate outlay. Cider.

But it is through its breeds of horses that Normandy is chiefly remarkable, Perche supplying the active strong draft-horse, combining strength with speed, in a degree unequalled by any other race; and Merlerault, and the neighbourhood of Caen, the celebrated harness-horse, called the Anglo-Norman. The Percherons have been celebrated for ages, but the Anglo-Normans are of comparatively recent creation, dating from about forty years, and are the result of crossing Norman mares with English blood. The Norman horse for carriage-work and for mounting heavy cavalry was always esteemed, but was coarse and plain. The earliest attempts at improvement were made by introducing the English thoroughbred sire, with the result of giving some excellent produce occasionally, but with too great uncertainty. Where size was retained, the legs were often too light for the weight, and there was a general tendency to weediness; they were, in fact, injudiciously crossed, and they looked like it. After many experiments, and through many mistakes, a special breed Horses.

Horses

appears to have become definitively established—a half-bred horse, the offspring of Norman mares and the Norfolk trotter. The English thoroughbred horse, though unsatisfactory at first, has probably exercised a favourable influence upon the present breed, as it is hardly to be expected that such good animals could be produced from the old coarse Norman mare and the Norfolk sire but for the amount of blood infused into the Norman race.

One of the most successful breeders was the late Marquis de Croix, of Serquigny, an old cavalry officer and large landowner. He began his stud in 1839 with thoroughbred English stock, choosing the stoutest he could find, but did not succeed in obtaining the power and muscle he sought for. Starting from a fresh point, he employed the Anglo-Norman sire, putting him to a mare with a larger share of blood; and he obtained a stock with powerful muscle, good bone, and splendid action, and was so successful, that the horses he sold when fit for work reached the high average of £224. On his death, in the summer of 1874, the stud was broken up. Seven young mares averaged £130, 8 aged mares £174; 12 yearlings £71, 9 two-year-olds £112, 4 three-year-olds £180, 7 four-year-olds £172, and 10 horses in use £153 each. Shortly before his death, he wrote that if he had to begin again it should be from the Norfolk sire and a thoroughbred mare.

At the exhibition at Vienna in 1873, the entries of horses were 420, of which Austria and Hungary sent 337, Germany 29, Russia 12, Italy 7, and France 35.

All these 35 from France were taken by M. Edmond De la Ville, of Bretteville-sur-Odon, near Caen, one of the most important breeders and dealers in Normandy. They consisted of 31 sires and four mares, all half-bred Anglo-Normans, and excited great enthusiasm, crowds of all classes coming daily to examine them. They obtained fifteen prizes and the diploma of honour. The emperor purchased two of the mares, one of which, Conquête, had won the trotting-race at Rouen in 1872, doing the four miles in 11′ 53″, carrying 13 stone. She was at that time eight years old. Eighteen of the sires were bought for the Government studs; and these purchases were made after experience of their value, the studs already possessing twenty-two sires of the breed, previously purchased through M. De la Ville. Horses.

There is a club at Caen for the encouragement of half-bred horses, under whose auspices trotting races are held in Normandy, and through whose example the taste for them is spreading over France. In 1874 there were 84 trotting-race meetings in various parts of France, against 62 in 1872, and 220 races against 176, while the acceptances were 1,537, as against 1,298. Of the 220 races, 195 were ridden and 25 ran in harness. The usual distance, at the best meetings, is 4,000 metres, the old league of $2\frac{1}{2}$ miles; the club weights for riders are 9 stone 10 lbs. for three-year-olds, 11 stone for four-year-olds, and 11 stone 11 lbs. for five-year-olds and upwards. In some races the minimum height is limited to 14 hands 2 inches, and the Trotting Races.

Trotting Races.

maximum time usually allowed for horses to be placed is ten minutes. The weight of the carriage, when this race is run in harness, is generally 220 pounds for three-year-olds, 275 pounds for four-year-olds, 330 pounds for five-year-olds, and 385 pounds for six-year-olds and upwards, including the driver; but for Percheron horses it is 330 pounds for four-year-olds, 385 pounds for five-year-olds, and 440 pounds for six-year-olds and upwards.

Out of the 1,537 acceptances in 1874, 656 horses were placed, and there were 337 takers of prizes. In almost every race more than one prize is given, sometimes as many as seven. Out of the 220 races, 129 were for the distance of $2\frac{1}{2}$ miles, and they produced 133 takers of 259 prizes, the most speedy doing the $2\frac{1}{2}$ miles in 6′ 58″, the slowest in 10′ 24″; the average of the whole 259 was under 8′ 10″, only eight being above 10′. This makes a pace at the rate of 18 miles 3 furlongs an hour for $2\frac{1}{2}$ miles, a high average to be attained by 133 horses winning 259 times. The average of the 82 fastest horses was 7′ 45″, or $19\frac{1}{3}$ miles per hour; of these 82 four of the fastest were by the Heir of Linne, the others were removed one degree from English blood. These four ran in 32 races, one of them, Orphée, winning 12 times, making an average of 7′ 06″, and beating all the others. Twice he covered the distance in 6′ 58″, twice in 7′, once in 7′ 4″, and three times in 7′ 7″. He reduced his average by the other four races, which he won so easily that he was not put to his full speed; but he was evidently

the best horse of his year. In one race he did 3¾ miles in 10′ 17″. Trotting Races.

The year 1876 shows a considerable increase in these races; the number of meetings has risen to 106, and the races to 373, 55 being in harness and 318 in the saddle. The entries were 2,226; of these 830 horses were placed, and there were 485 takers of prizes. A hundred and four races were for 2½ miles, and they produced 129 winners of 212 prizes; the average time of these 212 was 8′ 10½″, but the 129 horses did their best races in an average time of 8′ 3½″; only four were over 10′. The best pace was by a Russian horse, Galka, in 6′ 24″; the next best was by Triton, by Flying Cloud, in 6′ 45″. The average of 35 horses for the 2½ miles was 7′ 24″, and for 50, 7′41″. Triton ran 18 times, was 10 times first and 8 times second. Of the 485 winners, 58 were by English sires, 15 by Arab, 3 by Russian, and 409 by French; these latter, however, being mainly of direct English strain.

In 1873, Niger, by the Norfolk Phenomenon, trotted the 2½ miles, once in 6′ 57″ and once in 6′ 55″; and Protecteur, by Bayard, did them in 6′ 53″; but the fastest record of a French horse is that of M. Revel's Pactole, who trotted 2½ miles in 6′ 38″.

On December 28th, 1875, Zethus, a white horse, was matched at Toulouse to do 12½ miles in 40′, trotting under saddle; he did them in 37′ 21″. The same horse was backed for £200 to do the same distance at Caen in 38′; he did it in 37′ 19″, to the surprise of the Norman breeders. Zethus is by an Arab sire out of a

Trotting Races.

mare of English descent, a daughter or grand-daughter of Fitz-Gladiator, but not thoroughbred. This horse was twelve years old at the time, a big horse, and he showed no signs of distress at the end of the race. In the spring of 1877, Zethus was beaten in a trotting match at Toulouse by Baron Finot's thoroughbred mare Zacinthe, by Fortunio out of Siren; the distance was 18¾ miles, on the ordinary road; the mare won easily in 59′. Zethus was much distressed, but no doubt the fourteen years told against him.

At the trotting races held at Vienna during the exhibition of 1873, a Russian mare, seven years old, covered 2¾ miles in 6′ 56″ against eighteen competitors, of which six were placed, two Russian, two Italian, and two French, the longest time being 7′ 17″. At the same place there was a trotting race for pairs, the carriages to have four wheels and seats for four people, but with no stipulation as to weight; the distance was 5½ miles. Twelve pairs of horses competed, of which four were placed. The winners were Italians, and did the distance in 17′ 18″; Russians of the Orloff breed were second, at 17′ 34″; Italians third, at 17′ 53″; and Russians fourth, at 18′ 16″.

During the last winter's races (1875-76) in Russia, Young Bedouin did 2 miles in 4′ 59″ in a four-wheeled droshky, which it is calculated makes the horse lose 10″ as compared with a two-wheeled sulky; the mile in the droshky would be 2′ 29½″, and deducting the 10″ it is reduced to 2′ 19½″, or 2 miles in 4′ 39″. America does not show much better work than this; Goldsmith Maid

has done a mile in 2′ 14″, three others in 2′ 16¾″; the fastest record for 2 miles is 4′ 50½″, and for 3 miles 7′ 21.″ Trotting Races.

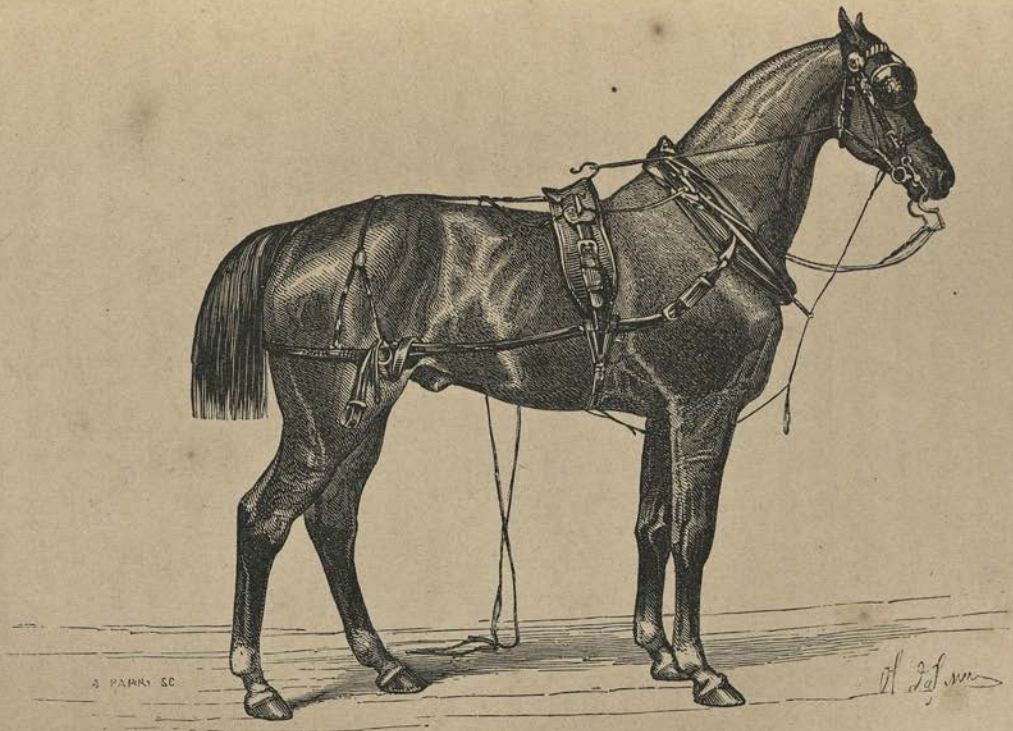
The longest trotting races in France are those held at Neubourg, in Normandy. They are run in harness and upon the ordinary high road; the distance is 8 miles 1 furlong. Eight horses ran in two races in 1874; the fastest time was 24′ 52″, won by Bon Espoir, and the slowest of the six placed was 30′ 25″.

In 1872, a trotting Derby was established at Rouen, the first race to come off in 1874 for horses born in 1871; the entries for the first year were thirty-four, of which eighteen declared forfeit, one seems to have died, four did not come to the post, and eleven started. The race was, as usual, 2½ miles, and was done in 7′ 42″ by the winner, which is a good pace for a three-year-old, as trotting depends so much on training; by six years of age a horse ought to gain a minute in time. There were thirty-five entries for 1875, forty-eight for 1876, and seventy-four for 1877—a very notable increase. The winner in 1876 was M. Lebas's Rebus, by Pretty Boy out of Miss Airel, time 7′ 35″. The names of sires or grandsires of the horses entered show their English origin: Heir of Linne, Phenomenon, Matchless, Pledge, Young Quicksilver, Eclipse, Morning Star, Pretty Boy, Flying Dutchman, Sincerity, Sultan, Norfolk Phenomenon, Fireaway, Affidavit, Catspaw, Performer, Chief Baron, Fling, Sting, Stag, Young Shales, and Flying Cloud.

The ordinary height of these Anglo-Norman horses is about 15·3, the demand now being more for this sized

Horses. horse than for those over 16 hands; besides, these smaller horses are more perfect, the larger ones being apt to have rather a heavy fore hand, and to run too light in the leg. The best specimens are bred in the district called Le Merlerault, in the department of the Orne; their heads are fine, with straight noses, good eyes, bold eyebrows, necks light and bloody, and shoulders long and sloping; they are well-ribbed up; there is a tendency to too much lightness; and they are sometimes leggy, but very supple and elegant. It is to be noted that these Anglo-Norman horses are perfectly free from any cross with the Percherons. Out of the 190 entered for the trotting Derby in the four years, there are only three set down as grey, the colour by far the most general of the Percherons, and of these one was from an Arab mare; there are two iron-greys, one black flecked with white, one grey roan, several dark roans, and two called "peach-blossom"—none of these colours being characteristic of the Percherons.

The number of horses returned by the census of 1872 as existing in Normandy, 272,500, gives a very imperfect idea of the importance of horse-rearing in the province; it is only two-thirds of the number in Brittany, but most of the young stock of Brittany passes through Normandy; indeed, the Norman dealers scour the country from the frontiers of Belgium to the extremity of Brittany, and also southwards through the marshes of Poitou, attending every market and fair, picking up every likely animal, and converting him into a Norman horse. The department of La Manche



ANGLO-NORMAN CARRIAGE HORSE.

supplies more horses born in that department than does any other in France. Horses.

The number of mares in Calvados and Orne is only 67,000, and of young stock under three years of age only 30,000; but more horses go out of these two departments annually than probably out of all Brittany. Whoever wants a good horse goes to Normandy for it, and the dealers are always prepared with the best horses in the country. If they don't breed them, they buy them, and make them. At the horse show at Paris, in 1875, which was for saddle and carriage horses only, out of 389 horses exhibited, 262 came from Normandy and 254 were sent in by dealers, chiefly from Normandy —but for the Norman dealers there would be no horse show at Paris. The proportion is about the same every year. At the same show, in April, 1876, there were 396 horses entered, 297 of which came from Normandy, sixty-three from the west, twenty-three from the south, one from the east, and four from the north; 217 out of the 297 Normandy horses belonged to dealers.

Occupying the southern part of Normandy, extending, indeed, into Maine in one direction, and to the borders of the wide plains of La Beauce on the other, is the old county of Perche. Among its hills rise the numerous streams that feed the basins of the Seine and the Loire, and the smaller ones that cross Normandy and fall into the English Channel. Its extent is about fifty miles by sixty, and it is a country much broken up, intersected by numerous valleys full of small streamlets, Perche Horses

Percheron Horses.

the soil clay upon a chalk subsoil, generally spongy and wet. The tops of the hills are poor, the land being flinty but well wooded. The enclosures are small, surrounded by thick hedges yielding a regular crop of timber. The natural grass of the country is rich and good, but limited in area, being confined to the borders of the streams. The air is considered sharp and bracing, and the waters very tonic. The holdings are small, seldom exceeding 100 acres, and are held on leases of from eight to twelve years. The produce is very various; the main dependence of the farmer for fodder is on artificial grasses. Apple-trees are an important though an uncertain source of revenue, yielding, probably, one-sixth of the returns. Horse-breeding is the chief business of the Perche farmer: as many as half a dozen brood mares will be found on many a small farm of seventy to one hundred acres; one small farmer has a mare twenty-two years old, which has brought him fifteen foals. The mares are put to the horse every year, worked up to within a few days of foaling, and again a few days after. The foals are kept in the stable from the time they are dropped until they are weaned, getting milk from their dams only in the morning, and when these come in from work at midday, and at evening. They are weaned at the age of five or six months very roughly; the fillies remain with the breeder, or in the same parish, but the colts are always sold away, bought by farmers who never breed, but only rear young stock; and the division of labour is so precise, that it would be in vain to look for a brood mare or a filly in certain localities,

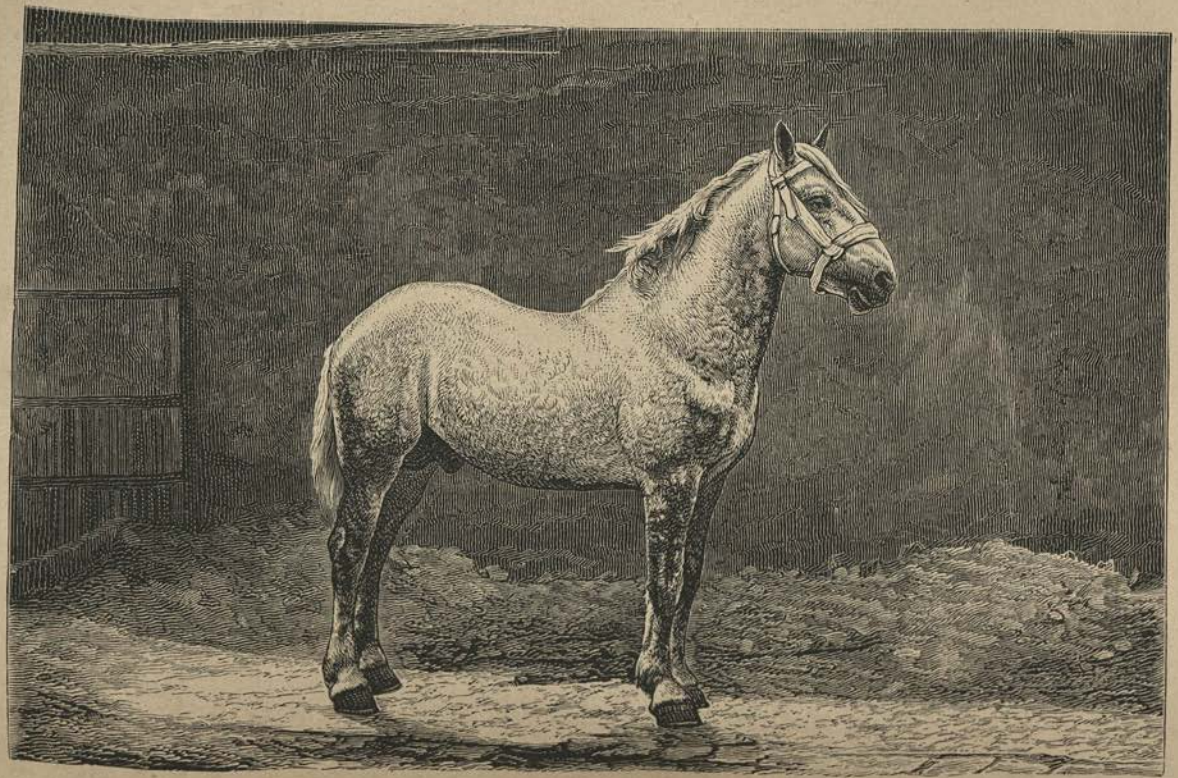
and equally in vain to look for a colt-foal of more than six months old in others. The buyers of the young stock vary, of course, in their mode of purchase and after-treatment; some take great pains, going to those breeders whose stock has the best repute, choosing the most likely animals, and taking proper care of them afterwards; others attend fairs, where they meet jobbers who have bought a lot of young things, and from this stock they select what pleases them, and keep them at home, half a dozen together, in a badly-ventilated stable, not over well fed, and turned out in summer to pick up what can be found about the fields and orchards. The prices for these young colts seem to run from £12 up to as high as £30. This is the hardest time for the Percheron horse; he is unprofitable, and as little money is spent upon him as possible: it is reckoned that less than £4 will cover his keep for this year of his life. At eighteen months old he begins to earn something, but is very lightly dealt with as regards work: four or five are put to do what a couple of horses could easily manage; or two of them are harnessed before a pair of oxen, to do some ploughing. He is now better fed, and well treated, and remains in this position, doing more work as he grows older, until the age of about three years, when a market is found for him with the large farmers in La Beauce. This education is excellent; broken to work early, attended to when in the stable by the women and children of the house, and gently handled by the farmer, his natural good temper is not spoilt by harsh treatment. Every Percheron farmer seems a natural-born

Percheron Horses.

Percheron Horses.

breeder of horses: playing about among them from the time he can carry a whip, there is not a man in the country who does not understand them. The country is well adapted to bring out their powers of muscle: short but steep banks, which teach them to pull well against the collar, and to sustain great weights in descending, break them in naturally for their after-work. At three years of age they make from £35 to £40, and sometimes more; and now comes a time of real hard work, accompanied, however, by very high feeding. The Beauce farms are all large, often much divided; all the country is under plough; sowing and harvesting must be done, and done quickly; oxen would be useless in such a country. Here the Percheron horse is driven at his utmost powers of speed, and has to draw the utmost weights of which he is capable. He not unfrequently breaks down under the trial, but those which do not succumb, after doing the farm-work for about a year or so, are sold at the great fairs, chiefly those of Chartres, to buyers who require them for omnibus or heavy team work at Paris or elsewhere. The price now will have reached from £40 to £60, not a great advance upon the cost to the Beauce farmer; but he has done the work that was indispensable, and he has passed through three or four hands, each one getting some profit or benefit from his use.

The French are very proud of the Percheron breed of horses, and consider the true race as very ancient, and as pure as the best breeds of England or Arabia. The characteristics of the best horses are, that they run



TYPE OF PERCHERON HORSE.

from fifteen to sixteen hands in height; the head is handsome, though perhaps sometimes heavy, but more frequently as fine as an Arab's; the nostrils wide; the eye large and expressive; the forehead broad; ears silky; neck rather short, but with a good crest; withers high; shoulders long and sloping; chest rather flat, but broad and deep; body well ribbed; loins rather long; crupper level and muscular; the buttocks often high, leaving a depression above the junction of the tail, which is set on high; joints short and strong; the tendon often weak; legs clean and free from coarse hair; feet always good, though rather flat when reared upon moist pastures; the skin fine; and mane silky and abundant; the colour is generally grey, but there are some grand black Percherons. At the fair at Chartres, February, 1877, one dealer had eighteen blacks, for which he asked £2,000, and they were well worth that money. Docile, patient, honest workers, very hardy, the Percherons are unexcitable, but active and cheerful, rarely showing bad temper, and very free from natural blemish, trotting away cheerfully with heavy loads. The French call them the best draught-horses in the world. Percheron Horses.

All these fine qualities are now rarely found combined in any of the Percheron horses: the race has deteriorated, in a great measure owing to its high qualities. Purchasers have for so many years been so numerous, that to meet the demand horses are brought from Brittany, from La Vendée, and from the Boulonnais, and sold as Percherons. Sires of the best form have been taken out of the country at high figures to other parts of France

Percheron Horses.

and to foreign countries. Prussia has been a large buyer, her purchases of mares in 1872 being 934; in 1873, 1,256; and in 1874, 1,950, and these were selected mares, for breeding purposes. Distant America sends its buyers, who, disdaining to chaffer about price when a first-class animal is offered, ship some of the finest Percherons to New York. The premiums offered to encourage care in breeding have had an effect directly the contrary to that hoped for, as purchasers have, by means of these premiums, had a sure guide to the best stock, and money has not stood in the way of sales being made. As the high quality of the original stock has suffered from the abstraction of choice sires and mares, so it has also suffered by the introduction for breeding purposes of horses of a similar type, but of inferior stamp. Many mares have been introduced from Brittany, with perhaps less injury than that caused by those introduced from other parts, as there has been for generations a frequent interchange of stock between Brittany and Perche, but many have also come from the Boulonnais and from the Pays de Caux, heavy lymphatic animals, "scrofulous breeds," as the Percherons call them, useful in their place, but not possessing the active cheerfulness of the Percheron, and incapable of the speed under heavy weights which is the boast of the Percheron. Fashion has also assisted in the change for the worse. About 100 years ago, Madame Dubarry was presented with a pair of Danish horses, which became the rage in Paris, and several Danish stallions were imported into Normandy; the fashion did not last

long, but it left its trace, and is visible now in the remains of the Roman nose. A fancy for English blood stock had a run, which did no good to the Percheron, and now opinions differ much as to the best methods of restoring the race to its original value. Two breeds seem to divide the judgments of those interested, viz., the Arabian and the half-bred Norfolk trotter. Arabia is supposed to be the original source whence the Percheron was derived, and though it is difficult to see in the heavy Percheron horse any resemblance to the light, sinewy Arab, yet the difference is accounted for by many generations of strong food, heavy work, and a different climate, and the Percheron certainly retains the colour, the docility, the good temper, the soundness of constitution, and the freedom from blemish, of the supposed original, and the change is hardly greater than is observable in our thoroughbreds, all mainly of Arab origin. Plenipotentiary and Gladiateur, and still more that cart-horse, the Sailor, who won the Derby when he sank over his fetlocks in mud, are as far removed in appearance from the Darley Arabian as are the Percherons. Percheron Horses.

In the various attempts made to restore the race Arab blood seems to have been successful. In 1760 the stud at Le Pin was chiefly composed of Arabs and Barbs. The fancy for the Danish and English blood stopped this tendency; but in tracing back the pedigree of the Percheron sires crossed with English blood that were the most successful, it has been found that the English horses were only very little removed from the

Percheron Horses.

Arabian. In 1820, two Arabs, Godolphin and Gallipoly, brought back the Arab strain, and restored permanently the grey colour, which had become less fixed. It is a tradition in the country that the distribution of the horses through France on the defeat of the 300,000 Arab horsemen by Charles Martel in 732 furnished the source of most of the breeds of France. In many places they died out from unsuitability of climate, or bad management; but they were preserved in Perche very much by the care of succeeding nobles, and mainly by those Counts of Perche who went to the Crusades, and brought Arab horses back with them. A lord of Montdoubleau is especially credited with taking extra pains in this respect; and at this moment the breed at Montdoubleau is esteemed the best in the country, and its horse fairs are the most important.

The returns collected by the Government of the number of horses in each department of France show clearly enough what a drain there is upon the Percheron country for its horses; for, whereas in 1866 the total number of horses of all kinds in Orne was close upon 70,000, it had sunk to 67,400 in 1872; in the former year there were nearly 23,000 under three years old, in 1872 only 16,700. That this demand is causing an increased supply is also shown by the number of mares in the country, which have increased from 30,826 in 1866 to 38,020 in 1872. Whatever may be the opinion as to the quality of the horses now bred here, it is pretty clear that it is more than ever before a profitable stock for the small farmer to breed. In 1860 the number of

brood mares sent to the Government studs in Orne was 3,213, from that date they gradually declined to 1,486 in 1871, much of this reduction being owing to the German war. They are now increasing again, and in 1873 they amounted to 2,425. Percheron Horses.

The price of meat may be supposed likely to cause the rearing of cattle to interfere with horse-breeding, and so, no doubt, it does in countries which are adapted to it; but this is not the case in Perche, the climate being unsuitable, or the food. Good breeds of cattle from the adjoining provinces of Maine and Normandy have been introduced, but they have soon degenerated. They become more bony, do not put on flesh, and it is only by having recourse to the original stock that any good horned cattle can be reared in Perche. Those characteristics of climate, water, and food, which are so valuable in giving to the Percheron horse his force and energy, are just what are unsuitable for the breeding of animals whose value depends on their power of rapidly making flesh. Lands with lime in the soil and the plants are considered in France to be eminently favourable to the growth of bone in animals, and it is thus that the change from the original Arab horse to the Percheron is accounted for. The bone increased greatly by a large supply of lime to the system, and muscle followed naturally the formation of bone. The very poultry in Perche show the effect of the soil and climate. The flesh-making Crêvecœur would not be recognised in the skinny, bony, excitable offspring of the second generation. This theory is not absolutely accepted, as M. Moll

Percheron Horses.

quotes the opinion of M. Devaux-Loresier, who declares he could breed Percheron horses just as well anywhere else as he does at home, and that the distinctive name is quite recent, not dating beyond the beginning of the present century. As a matter of fact, however, these horses have been bred in Perche for ages, and are not bred anywhere else.

A large number of useful but ordinary Percheron horses are to be seen in the streets of London, many showing the delicate and fine head and silky ears of the Arab; but by far the best specimens are in the service of the Paris Omnibus Company. Their average weight is 13 cwt. 3 qrs. They work four hours a day, at the rate of five miles an hour; but as that calculation includes stoppages, the pace is much quicker, and the distance covered much less than twenty miles. The weight drawn by a pair is two and a half tons.

The Percheron horses are not trotting-horses purely as trotters, like the Anglo-Normans, but they are unequalled for getting away well with heavy loads; their trotting powers, however, are not to be despised, as some of their performances will show; and it should be remembered that these examples were performed upon unprepared courses, heavy if the weather be wet, hard and rough if dry, and in almost every case upon unlevel ground, the course at Mortagne having three drops, and three ascents, "as steep as the roof of a house," in the distance of a thousand yards. Mounted they are ridden by inexperienced country lads, who have not the slightest judgment, and in harness they draw common farmers' gigs

with heavy trappings. Horses that can do such work under such conditions must be plucky and good. Percheron Horses.

The examples of horses ridden give the following results:—

Distance.	Entries.	Fastest.	Slowest.	Average.
1¼ miles	29	3′ 50″	7′ 48″	4′ 12½″
1⅝ „	31	4′ 38″	9′ 18″	6′ 40″
2 „	40	6′ 2″	10′ 30″	7′ 20″
2½ „	65	7′ 35″	13′ 26″	9′ 15″

In harness the examples are:—7½ furlongs in 4′ 2″; 1¼ miles in 5′ 4″; 2 miles in 7′ 17″. For a 2½-mile race there were 14 entries, the fastest horse did the distance in 8′ 30″, the slowest in 11′ 55″. The minimum weights in harness are 330 lbs. for four-year-olds, 385 lbs. for five-year-olds, and 440 lbs. for six-year-olds, and upwards, including driver.

In the trotting-races for 1874, 19 Percheron horses were entered, the distances varying from 1¼ to 3 miles; the greatest speed attained was at the rate of 16 miles per hour; 9 horses reached this over courses of 2½ and 3 miles; the slowest was at the rate of 12 miles, the average being close upon 15. Three and a half miles have been done in 12 minutes, equal to 17½ miles per hour.

At the trotting-race meeting at Illiers, in Beauce, in the centre of the country that uses Percheron horses, in 1876, the 3-mile race was won in 9′ 43″, the second horse taking 9′ 55″; the 2¼-mile races were won in 8′ 27″, 8′ 44″, 8′ 50″, and 9′ 04″; all these were under saddle. The race in harness for 2¼ miles was won in 8′ 10″, the second horse taking 8′ 30″; all these horses stood 15·2

Percheron Horses.

and 15·3 hands; it must be remembered that these are cart-horses.

A grey mare, six years old, took a heavy gig 56 miles over a hilly road in 4 hours and 24 minutes, and another, 7 years old, drew an ordinary country gig 55 miles in 4 hours 1 minute 35 seconds, returning the next day over the same ground in 4 hours 1 minute 30 seconds, the last 14 miles being covered in one hour, and neither in going or returning was she touched with the whip.

The pace in the old diligences was 8 miles an hour; posters would do 10 miles on pressure, but it was extreme, and only occasionally.

The character of the Percheron horse has made the country one as much for horse dealing as for breeding; fifty-seven fairs are held in the Perche district in the course of a year—more than one a week—and some of them last ten days or a fortnight. Horses come from all sides to these gatherings—from Brittany, from the marshes of Poitou and La Vendée, from Artois, and the Pays de Caux, but more particularly from Brittany.

PERCHERON HORSES—POSTERS.

BRITTANY.

"THE country has a savage aspect; husbandry not much further advanced than among the Hurons; the people almost as wild as their country. One-third of what I have seen of this province seems uncultivated, and nearly all of it in misery. Wastes, wastes, wastes; no exertion, nor any marks of intelligence."—YOUNG, 1788.

"Since 1845, when an association of landowners was formed, agricultural progress can be clearly traced; animals, implements, products, are multiplied and improved. A third of the waste land has been brought into cultivation since 1840."—LEONCE DE LAVERGNE.

Brittany.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.	Hives of Bees.
Finisterre ...	620,327	1,681,952	776,107	371,800	351,000	91,620	103,848	404,140	63,227	93,531	63,207
Côtes du Nord..	612,752	1,721,405	1,142,925	313,750	57,897	91,207	95,350	296,819	144,570	153,050	60,000
Morbihan ...	477,138	1,699,452	708,197	470,370	350,587	93,725	42,948	294,992	116,200	65,880	48,130
Ille et Vilaine...	573,763	1,681,457	1,113,922	240,995	79,997	111,907	66,633	327,100	40,704	104,617	96,038
Loire Inférieure	590,888	1,718,640	1,037,197	387,500	62,500	117,500	31,000	360,000	134,900	74,600	40,000
	2,874,868	8,502,906	4,778,348	1,784,415	901,981	505,950	339,779	1,683,042	399,601	491,678	307,375

	Population.	
	Collected.	Scattered.
Finisterre ...	194,183	426,144
Côtes du Nord..	189,822	422,930
Morbihan ...	140,057	337,081
Ille et Vilaine...	186,854	386,909
Loire Inférieure	195,389	395,499
	906,305	1,968,868

Corn Acreage Returns, 1876.	
Wheat ...	996,385
Mixed ...	60,362
Rye	419,645
Barley ...	231,007
Buckwheat	782,515
Oats... ...	918,390
	3,408,304
Potatoes ...	90,354

	Horse Stock.	
	Mares.	Under 3 yrs.
Finisterre ...	44,736	36,408
Côtes du Nord..	46,230	25,210
Morbihan ...	18,234	7,383
Ille et Vilaine...	21,228	12,072
Loire Inférieure	14,500	7,800
	144,928	88,873

Cattle Stock—Milch Cows.

Ille et Vilaine 201,792
Finisterre ... 198,685

The largest quantity of any department.

Half the buckwheat in France is grown in Brittany.

Finisterre and Côtes du Nord have the largest head of young stock in France.

Population per square mile.

Brittany ... 220
France ... 175

Brittany ... 19·40 urban ... 80·60 rural.
France ... 31·06 „ ... 68·94 „

Decrease of population between 1866 and 1872.

Brittany ... 1·44 per cent.
France ... 1·29 „

Proportion of population who can neither read nor write, above six years old.

Brittany ... 43·98 per cent.
France ... 30·8 „

In Finisterre more than 56 per cent. of those above six can neither read nor write.

In marked contrast to prudent, matter-of-fact, business-like Normandy is the neighbouring province of Brittany—that is, real Brittany, the three departments of Côtes du Nord, Finisterre, and Morbihan. Ille et Vilaine, co-terminous with Maine and Normandy, partakes somewhat of the character of these two provinces, and Loire Inférieure is influenced by the traffic of the great river.

Throughout France the various races that people the country have kept remarkably distinct; but none have preserved their individuality so unimpaired as the Bretons. Customs which certainly existed before the Roman conquest of Gaul still prevail in some parts, interwoven with the practices of the Christian worship; and in no part of Europe are there to be found evidences so imposing, so numerous, or so perfect, of that ancient faith of whose principles so little knowledge exists.

In the north, in the Leonnais, there is that strange familiarity with the dead which keeps their bones piled up in the sight of the living. There death is accepted as a direct act of the Almighty; the doctor's assistance in illness is barely allowed, but all faith is placed in prayers: "God is touching us with His finger," they say. During the visitation of the cholera in 1853, when there was no house but had a corpse, the only preparation made was the opening of graves to be ready for those who were yet in good health; and it always was so; a ballad of the sixth century, commemorating the Plague of Elliant, recites—

"The plague, she says, is on our door sill;
'Twill enter if it be God's will;
But 'till it enter, bide we still."

TAYLOR'S "*Ballads of Brittany.*"

Here, on the festival of St. John, when the country is ablaze with bonfires, chairs are set ready for the use of the dead, who are supposed to take part in the ceremonies to which they had been accustomed in their lifetime; and so at the festival of the dead, on the day following that of All Saints, the family supper is not removed, but left for the spirits who may visit their friends on earth; and on that same night the souls of those lost in Deadman's Bay are allowed to return in the flesh—they ride on the crest of the roaring breakers, their moans rising above the howling tempest.

There Arthur's host is seen on the mountains, portending war:—

"Lo! warriors armed, their course that hold,
On grey war-horses riding bold,
With nostrils snorting wide for cold.

Rank closing up on rank I see,
Six by six, and three by three,
Spear-points by thousands glinting free.

Nine sling-casts' length from rear to rear—
I know 'tis Arthur's hosts appear;
There Arthur strides—that foremost peer."

TAYLOR'S "*Ballads of Brittany.*"

Superstitions so adopted from the ancient religion are tenaciously held, and even some traces remain of the worship of a malignant deity. Chapels were dedicated to "Our Lady of Hatred," one of which still exiets near

Treguier—or did in 1854, according to Souvestre; but the general feeling of the people is one of deep religious fervour, and so numerous were the roadside crosses destroyed in Finisterre alone by the Republicans in 1793, that when their restoration was contemplated the idea had to be abandoned on account of the expense, which was estimated at £60,000.

Population.

In contrast also to Normandy is the amount of the population—nearly 220 to the square mile, which is large considering that a fourth of the country is barren and sparsely inhabited. Marriages are early and families large, and whereas in Normandy the decrease of the population between 1866 and 1872 was 4·48 per cent, —about the largest in France—that of Brittany was only 1·44—about the smallest. This population is classed as urban and rural in much the same proportion as in Normandy—viz., 19·40 urban and 80·60 rural; but in Brittany there are no manufactures carried on in the homesteads; the rural population is really rural, is occupied solely on the land, and lives scattered in small farmsteads, two-thirds being returned as so living, and only one-third as collected in towns or villages.

Fairs.

But if the people live isolated, they take frequent opportunities of meeting. The number of markets and fairs is out of all proportion to the wants of trade; the poor department of Morbihan, with only 248 communes and 500,000 inhabitants, has 750 fairs yearly—more than two each day; and it is by no means rare to find

Fairs. 100 fairs in a year in a radius of seven or eight miles. In some parts of the country, what with fairs, markets, Sundays, saints' days, national holidays, and "pardons," not 200 days are left for doing work. The rulers of the small towns take advantage of this, and establish duties —the *octroi*—upon everything that comes within their walls that can be eaten or drunk. There are more than eighty little places in Finisterre alone which have the power of charging this duty, the expense of collecting which amounts to 50, 60, and even 83 per cent. upon the value. It is chiefly from drink that the largest amounts are collected, and in some parts of Brittany the houses for the sale of intoxicating liquors amount to one for every eighty or 100 of the permanent inhabitants.

Education. Brittany comes out very badly as regards instruction, 44 per cent. of the population above the age of six years being unable to read or write, the average of France being 30·8; Finisterre is especially low, more that 56 per cent. being in a state of ignorance.

Farms. The farms are small, from 25 up to 100 acres; 75 acres is called a big farm; the land in general is not worked by the owners, who, however, usually reside on their estates, but it is rented, or managed on the métayer system, but in the latter case the payment of the share of profit is made in money, except in Morbihan. In Brittany there are 176,282 farmers, which

gives an average of 35,256 for each of the five departments, that of all France being only 8,174 per department. This system of renting the land seems to have this advantage, that the mortgage debt of Brittany is the smallest in France, being only 8 per cent. of the total value of the freehold, the average of France being 16, and in some places it rises as high as 80 per cent. Farms.

The whole of the centre of the country, nearly two millions of acres, consists of vast dreary plains covered with ling and heather, intolerably melancholy, soaked with water during winter, burnt up in summer, upon which a few miserable cottagers rear a few miserable cows and sheep, and on which is heard no sound but the strident voice of the cricket, nor anything seen but a few clumps of stunted pines, and those wondrous stones which we call Druidical. These plains are only a few hundred feet above the level of the sea, and they feed innumerable streams, which, as they approach the coast, flow through rich and highly-cultivated valleys. The land is indented with arms of the sea, in some places forming enormous salt-water lakes, on the banks of which are many towns and villages flourishing from wealth produced by fisheries and by the export of produce, and where are moored ships, whose pennons flutter above the rich foliage of the chestnut, the evergreen oak, the laurel, and the pomegranate, which testify to the mildness of a climate where frosts are unknown. Soil.

The Golden Belt.

Between the wild heaths of the centre and the coast is a belt of most fertile land, stretching on the north from Dinan to Brest, and on the south from Quimper to St. Nazaire. This belt extends inland from ten to twenty miles, as far, indeed, as the fertilisers supplied by the sea-coast have been used, and their use has greatly extended in recent years, owing to the opening of railways.

Calcareous Sand.

These fertilisers consist of seaweed, fossils dredged from a considerable depth, and calcareous sand dug from pits in shore, but chiefly collected at the mouths of the streams and from the wide bays at low water; this latter is mainly composed of broken shells and small fossils. It varies considerably in richness; of 150 samples tested at the laboratory of the institution at Lezardeau, M. Philippar, the director, states that they contained from 10 to 95 per cent. of carbonate of lime. They seem to run very generally at from 50 to 80 per cent.; of samples taken from the bays at the mouths of the rivers Quimperlé and Avon, the smallest amount of carbonate of lime was $56\frac{1}{4}$ per cent., the largest 82, and the average was $71\frac{1}{4}$. Sand taken close to the sea gave 70 per cent., and further inland, but on the same spot, only 56; the extra cost of cartage might make the sand yielding the lesser quantity as profitable to the farmer as that yielding more.

Dredging produces similar sand, and also fossils; the liberty to dredge is permitted only to the sailors and fishermen who are enrolled for service.

Digging and collecting this calcareous sand has been free to any occupier of land, to any one, indeed, on the spot, from time immemorial, and roads to the most suitable places have been made at the cost of the communes. The French Government has recently (10th May, 1876), resolved that no more shall be dug without payment and without sanction from the authorities. The motive of this is partly fiscal, and partly to protect the coast from damage by too much being removed. The price suggested is only 1d. per cubic yard, but the formalities to be gone through to obtain permission to dig, and the restriction as to the spots where the diggings are to be allowed would be very vexatious, and a check would be put upon the improvement of the land in the interior, which, by the free use of this sand, is becoming transformed. Calcareous Sand.

The resolution has not been acted upon yet (1877), and probably may not be persisted in.

It is to the use of these fertilisers and to that of seaweed that the "Golden Zone" round Brittany owes its fertility. Within half a mile of the coast the land lets for £5 and £6 per acre; at a distance of a mile and a half the rent is £3; and at four and five miles only 24s. to 32s. per acre.

The most interesting of the fertilisers given up by the sea, which is so good a neighbour to Brittany, is the seaweed, which is collected in immense masses. On an appointed day the harvest begins; the whole population for miles round assembles at the points where Seaweed.

Seaweed. it is most abundant, with every conceivable means of transport—from the powerful teams of the large farmers, to the donkey and panniers of the cotter. The poorest have the first day to themselves; the rich do not interfere, except to assist their more needy neighbours with their carts and wagons. There is no law that rules this, but as a work of charity and in obedience to the desires of the priests, the poor are able to secure that upon which the produce of their plots of garden-ground depends.

In some spots as many as 10,000 people swarm to the coast, hauling in the seaweed and loading the carts. Much of it grows on rocks some distance out to sea. This is cut and piled on boats, or upon rafts made from boughs of trees; an empty cask is attached to the end of each load, and assists to support the mass, which floats in shore with the rising tide. The women and children lie half buried in the seaweed, making the air ring with laughter and songs, sometimes painfully checked by disaster, as the weight of the load is not unfrequently too great for the floating power, and the whole sinks below the water, drowning and smothering its living freight. The danger is very great should a sudden storm arise, and the population on shore then hurries to the churches to pray for the safe arrival of the cargoes with their precious freight.

The seaweed, particularly on the south coast, has been largely burnt for potash, but this article has so fallen in value that the manufacture in the old rude way must be given up, and the seaweed will be chiefly

utilised on the land, and many thousands of acres, now open common and heath, will be inclosed. One of the most important parishes—that of Plouhinec—has already partitioned among the 4,000 inhabitants nearly 7,000 acres, which will be gradually brought into cultivation. The 7,000 acres are divided into 17,397 different allotments; the inland lots reach to over half an acre; those nearer the sea are only about the sixth part of an acre, or even as low as less than the tenth. The land at a distance of four or five miles from the coast is worth at the outside £30 per acre; on the coast it makes three times as much—£80 or £90 per acre. An owner of ten acres near the coast, with the corresponding right of pasture over the common land, is a rich man. Some own double that quantity scattered about, which they let at from 30s. to £3 per acre. Seaweed.

The coast for about a mile inland is inhabited by people who draw their chief maintenance from the sea. Seaweed, fishing, a stray wreck, and the land keep them, but hitherto seaweed has been, particularly on the south coast from L'Orient to Douarnenez, the most certain source of income. Those who had land used what was requsite as a fertiliser, and burnt the rest; those who had none burnt all they could collect, and an industrious and numerous family could make from £16 to £20 yearly from the potash.

Though the burning of seaweed in the old way must be discontinued, a kiln on an improved system keeps at work, and those who have any seaweed to spare

Seaweed. within a reasonable distance of it will always find a market with Messrs. de Lécluse; but the chief use in future will be upon the land newly brought into cultivation, and the few miserable sheep now reared there will disappear, and their place be taken by cows.

Each family owns the soil. The labour is in the house in the family of the owner, the manure at their doors in the seaweed; the produce is wheat, oats, barley, and potatoes, cabbage, carrots, parsnips, clover, and lucerne. Each plot should produce enough for the support of the family, and also enough to keep the cows and sheep. One-fourth should be in wheat, one-eighth barley, one-eighth oats, one-eighth cabbage, carrots, and parsnips, one-eighth potatoes, two-eighths lucerne and clover, and any extra sandy land in sainfoin —this for a farm of ten acres at least, and one head of large cattle should be kept for every two and a half acres. Thus this farm of ten acres should keep the family and have something to sell. The smaller holdings should grow corn enough for the family, and have the rest in parsnips and carrots.

Sardines. Another manure which the sea contributes to the land is derived from the sardine fishery. The heads of the sardines are bought at 3s. 6d. per cubic yard, and are placed in layers with earth, and then spread over the land. The importance of this fishery may be judged from the work done at one port alone—that of Douarnenez—where, from the 20th June to

December, 600 to 800 boats are daily employed, each day's catch being estimated at 5,000,000 fish. Almost every port in Brittany sends out some boats, the fleet of Concarneau being 400; that of Camaret, 800. Sardines.

Aided by the soft and moist climate, the produce of parts of the coast of Brittany rivals that of Italy and the south of France. Frosts are hardly known. The pomegranate and the fig ripen their fruit out-of-doors; camellias are in full bloom in February. The land extending about fifteen miles along the north coast near Roscoff is especially celebrated for the growth of early vegetables—for its artichokes, broccoli, onions, asparagus, and potatoes. The export in 1875 was 7,800 tons of potatoes, fresh vegetables and onions 3,000 tons, artichokes 2,000 tons, representing a total value of £60,000. There is also a large produce of young cabbage-plants. Since the establishment of steam communication between Morlaix and Havre, large quantities are sent to England, the early vegetables amounting yearly to 500 tons, and the onions to 2,000 tons. The land is divided into small squares, divided from each other by dry stone walls or by mud-banks topped with furze. Four thousand inhabitants make a comfortable living and grow rich upon 2,000 acres of land, aided to some extent by fishing; and they send out yearly over fourteen tons of lobsters. Vegetables

The land sells at from £200 to £250 per acre, and recently a plot of 2½ acres was sold at the rate of £280 per acre, although there was a lease upon it, of which fourteen years were unexpired, at a rent of only £6 8s.

Vegetables. per acre. The people live very roughly, and though they are so well off and almost every household has a horse and cart, there are only two carts with springs in the whole district. During the height of the vegetable season, the seventeen miles between Roscoff and the port and station of Morlaix are so covered with these carts that they almost touch each other, and it is a work of no small danger to drive in a contrary direction to them, especially on their return home, when every driver has drunk too much cider. One peculiarity of their cultivation is that they never water their plants, except in very exceptionally dry seasons—such as 1876; and then they only water those plants that are transplanted, and those only twice.

Corn. Of the 3,500,000 acres annually sown with corn in Brittany, a full third is buckwheat and rye, there being twice as much buckwheat as rye. These two grains form the staple nourishment of the people, who live on a soup made of buckwheat-cake and buttermilk, not often touching wheaten bread, still more rarely butchers' meat. Buckwheat, indeed, is invaluable on the granite soil of Brittany; unsuited to a system of high cultivation, it is an excellent preparative for wheat on land fresh broken up, as the thick foliage destroys all weeds. The only manure it wants is phosphate, which was formerly supplied wholly by the animal black from the sugar refineries, and was largely imported from Bristol; this is now almost superseded by the mineral phosphates, beds of which have been discovered over so

large an area of France. So much is this plant dependent upon phosphate, that if every other element it requires be provided in the manure applied, but phosphate omitted, the crop will be no larger than if no manure at all had been given. Corn

The necessity for growing clovers and other green crops, which require lime, has driven the cultivation of buckwheat from the sea-coast where the calcareous sand supplies lime, to the poor granite soils of the interior; and as the growth of these increases, the supply of buckwheat is obtained from breaking up fresh land, which in its turn becomes gradually occupied by wheat. Buckwheat is very susceptible to atmospheric changes; a hot south-east wind at a critical moment scorches up the flower; a moist summer produces foliage instead of seed; it succeeds better sown broadcast than drilled. There is a considerable market for buckwheat in Holland; but the French seed makes a low price, from its inferior quality. An improvement in this respect has been attempted by the importation of Dutch seed —an attempt of the same nature as that for the improvement of French barley from the introduction of English seed, but it has not met with much success.

From what has been said of the Breton character, it will not be expected that improvement in farming should progress rapidly. Edmond About says, "The Breton is pushed forwards on the road of improvement, but is continually looking over his shoulder as though he had forgotten something." This statement, if true at the Farming.

Farming. time it was written, is so no longer; a good judge of agricultural matters, M. J. Laverriere, editor of the *Echo Agricole*, thus states the impression made on his mind on visiting the agricultural show at Quimper in the spring of 1876:—"This meeting at Quimper has been for many persons a mine of unlooked-for revelations. The general opinion is that Brittany, a country of granite hills, monotonous heaths, covered with gorse and ling, is one of the poor countries of France. What I saw round the coast shows, on the contrary, that Brittany is in the way of becoming one of our richest provinces." Agricultural machines at this show numbered 667, in 1868 they were only 290; machines are not shown except where there is a chance of selling.

In the ten years from 1862 to 1872 the increase in the extent of land under wheat, buckwheat, and rye, amounted to 252,000 acres, mostly in the two latter kinds of corn, which are chiefly cultivated in Brittany, half the buckwheat growth of France being in this province. Much of the increased land under cereal crops is from the rough grass broken up, which can now be brought under cultivation in consequence of railways bringing lime into the interior of the country; some by the draining of marshes, as at St. Gildas, where 8,000 acres have been enclosed during the last twenty years; and a good deal by enclosure by sea-walls of part of the vast extent of the mud-banks on the coast. Much of the Bay of Mont St. Michel has been so enclosed; 625 acres, embanked by the Mosselman Company, near Pontorson, were taken by one farmer at a rent of forty-

eight shillings per acre, to farm which a very heavy stock of implements was required. The land is very stiff after rain, and can only be worked with a heavy plough. Water has to be carried for over two miles for the use of the oxen and horses; the land, also, is subject to partial overflow from the sea, which destroys its farming value for some years, so that exceptionally heavy crops are required to stand against such expenses; 217 acres of wheat produced more than four quarters to the acre. The rotation is wheat, clover, and rape; the second growth of clover being ploughed in. At the other end of the bay, near Cancale, the land is better, and one enclosure of 175 acres is valued at £5 per acre annual rent. A good deal of fine asparagus is grown here, almost without care; barley yielded eight quarters two bushels to the acre, the straw said to have been as thick as a man's little finger! It is cropped alternately with corn and rape; no manure is applied, both the straw and the little manure from the stable being sold off the farm. There are here two miles of very solid embankment, and these embankments are proceeding both on the north and the south side of the promontory. Steam cultivation would probably pay here. Farming.

With the breaking up of waste land, draining of marshes, and enclosing foreshores, 600,000 acres of land have been brought into cultivation in Brittany between 1862 and 1873.

One-third of the grass-land in Brittany is in the department of the Loire Inférieure, and as it is marsh- Grass.

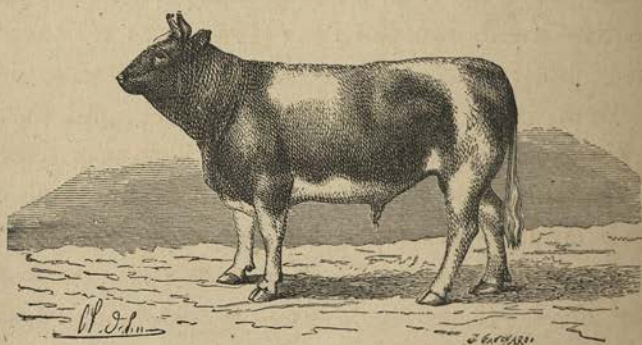
Grass. land it will come under consideration in treating of La Vendée; the remainder of the natural grass is not of first-rate quality, being very apt in the wet valleys to become sour, but in dry seasons it is abundant and good, in Finisterre especially. At Quimper in the winter of 1875–1876, when hay was very dear, the Paris Cab Company set up four presses, and sent off six tons each day, from October to March, all collected within a radius of ten to fifteen miles. As many as 1,500 tons altogether were sent from Finisterre to Paris, without making the price higher than £3 to £4 for the best quality. There is not much artificial grass grown, but the moisture of the climate suits rye-grass; cabbages, of which there are 21,000 acres; and parsnips, of which root there are 21,000 acres in Finisterre alone, more than any other department of France.

Parsnips. Parsnips rank very high in the estimation of the Bretons; they can be left in the ground without suffering from frost, and they yield fourteen tons to the acre; one ton of parsnips is reckoned to be equal in nutritive value to three tons of mangold, and they are considered more valuable than sugar-beet or carrots. Cows fed on them give more and richer milk, and they suit horses well. One gentleman, M. le Bian, feeds his horses wholly on parsnips; he gives three feeds a day, each of thirteen pounds, that is, about forty pounds a day. As parsnips in Brittany are only worth one shilling per hundredweight, the daily ration costs only about fourpence; oats would cost more than three times that sum.

Gorse is extensively grown on the granite soils, where nothing else would flourish; a field will yield from ten to fourteen tons of green fodder per acre from November to May; some will give more, and will last from twenty to thirty years. Cattle do well upon it, especially horses; it loses some of its spines by cultivation, and is cut up small, and bruised, before it is given to the stock; it is considered equal to about half or two-thirds its weight of good hay from natural grass, and it gives a rich colour to the butter. Gorse.

No province in France has so large a stock of cattle as Brittany, and nowhere do the inhabitants depend so much for their daily nourishment, and for their income, upon the produce of the cows. On some small farms the money taken for butter is almost the only money touched during the year. It is certainly the largest in amount upon many, and buttermilk all through Brittany, with rye and buckwheat cake, is the staple food of the people. The milk-producing properties of the small Breton cows are carefully guarded by the majority of farmers from any danger of diminution by the rejection of any attempt at a cross with breeds that might be supposed likely to change them, and, in addition to this, the farmers consider that on much of the poor, bleak land a cross of any race would give them a stock which would require more food than their land will yield, and which would not bear exposure to the rough winter weather of Brittany so well as their own. No pains are taken in the selection of sires, none Cattle.

Cattle. to improve the breed by more care in rearing the young. Calves are weaned at a fortnight old, or even a week. All the milk is wanted for the market and the household, and the milk is not replaced by good food; but through all these hardships the little Breton cows live and thrive where any other sort would die. The yield of milk under the ordinary treatment is not large, never exceeding from a newly-calved cow seven quarts per



BRETON BULL.

day; but the milk gives much butter, one pound being obtained from ten to twelve quarts. The average yield per annum is less than 700 quarts; well-fed cows will give close upon 1,000. Statements have appeared in print that these little animals will give from twelve to fifteen quarts a day of milk; and from four pounds to seven pounds of butter per week. If this quantity of milk is obtained, there has probably been some cross with the Ayrshire, as almost double the quantity of milk is wanted to produce nearly the same amount of butter. The colour of the Breton cattle is almost always black

and white; towards the extreme west, in Finisterre, they are red pied. These are somewhat larger than the black. In Ille et Vilaine the breed is more particularly that of Maine, not the Breton. In Loire Inférieure the Vendéen predominate, and on the north coast there is much crossing with the shorthorn. The small black and white pied, however, about thirty-six inches high, is the true native breed of Brittany. Cattle.

There have not been wanting many efforts to improve the native breed. In the Loire Inférieure very much of the land under cultivation consists of soil freshly broken up. To do this work oxen were required, and the race that was nearest at hand was the one naturally selected. The Vendéen cattle once introduced remained, and now there is hardly a farmer in the central districts of this department but buys and sells a couple of yoke yearly.

In Ille et Vilaine there is no distinctive breed, there probably never was, and the stock is made up of a lot of cross-bred animals, in which the shorthorn blood of its neighbour Maine largely exists, and which will soon supersede all others. This stock seems to suit the country, as Ille et Vilaine is one of the largest butter-exporting departments of France.

When attempts at improvement were first made it was the Ayrshire that was introduced. The reputation for milk produce was, no doubt, the reason of this choice, but it was soon abandoned, as the yield of butter was so small. The Jersey followed, but appears not to have given satisfaction, and now the shorthorn is distinctly asserting itself against prejudice where the

Cattle

land is good enough, or farmed sufficiently well to give nourishing food. This is the case along the northern coast, and as far into the interior as good manures and high farming extend, but not on the southern coast. In Finisterre the shorthorn is accepted more cordially, and it is not uncommon for a few small farmers to club together to buy a shorthorn bull for general use.

The increased price of meat has, no doubt, decided the success of the shorthorn. It seems rather a strong experiment to cross the smallest with the heaviest cattle, but the result must be called a success, and the Brittany cross makes very good meat, which is appreciated in England. In the autumn of 1874 a monthly market was started at Landerneau; and on the 8th of March, 1875, at the fifth market that was held, 326 head of fat cattle were offered for sale, and every one was purchased for England. A shorthorn ox was sold for £34, and a pair of small black oxen of the native Cornouaille breed made £46, a high price considering their size. A great stimulus was given to breeding for the butcher. One small farmer fatted and sold twenty-five head of cattle between November and March, and the produce of the land is all consumed on the farm, besides which, other fattening materials are purchased and the soil immensely benefited. This is a great change from the former state of the country. It is not very many years ago that young stock were almost given away at the fairs of Landerneau and La Martyre.

The requirements of the English Cattle Diseases Prevention Act stopped this useful traffic; but this is

owing to the negligence of the French authorities, who have not appointed properly qualified veterinary surgeons, whose certificates would permit the free entry into England of French cattle from districts proved to be free from contagion. This is in process of being remedied, and, whether for England or no, the trade continues, the market in 1877 having 700 head, the large majority being in excellent condition for the butcher. Two-thirds were sold at very satisfactory prices. Cattle.

One of the leading promoters of the shorthorn cross in Brittany is the Vicomte Paul de Champagny, who farms highly a fine estate at Heranroux, near Morlaix; he has an annual sale of stock, and in 1876, out of thirty-two animals offered twenty were sold; the male calves from two to six weeks old made an average of £14, young bulls of fourteen months an average of £28, cows and heifers an average of £16.

The show at Landerneau, in February, 1877, proved that early maturity was making progress—in north Finisterre, at all events; among the fat stock twenty-six head were under three years of age, nineteen between three and four, and only thirteen above that age. And as regards breeding animals, the shorthorn was predominant; out of seventy-nine shown, twenty were pure shorthorn bulls, thirty-three bulls crossed with shorthorn, and sixteen cows shorthorn or its crosses, leaving only ten animals for breeding uncrossed. This is quite reversing the order of things that existed when the show was first established, then it was quite exceptional to see any fat stock under four years old.

Cattle. The weight of the fat stock was about an average of 1,874 lbs., nothing very wonderful, but double what it was fifteen or twenty years ago.

That Brittany should possess so large a stock of cows, and find them such good milkers, will not appear surprising, at least to the Bretons, when it is remembered that she possesses the body of St. Herbot, the patron saint of cattle. On the anniversary of this saint's day, pilgrims flock from all parts to his shrine, or rather on the three days consecrated to him, and during these days all the cattle in Cornouailles rest from labour; formerly they accompanied their owners, and when not taken were said to find their way alone. They are now dispensed from coming by the direct authority of St Herbot himself, but upon condition of having a handful of the hair from the tail of each animal placed upon the altar: the hair so deposited is estimated to be worth from £60 to £70 yearly.

Sheep. The sheep in Brittany are few and poor; a large proportion are black-woolled; the mutton is reputed good; they are hardy, and thrive sufficiently well through the summer and autumn upon the unenclosed heaths, but are half starved during the winter. They drop their lambs in January, when the land is soaked with the winter rains, and the lambing season is a time of misery to all concerned. Those fed upon the salt-marshes have a wide reputation for fine flavour. Sheep, like other farm produce, are improving as cultivation improves, and there is frequent crossing

with the Southdown and Leicester; the latter seem most approved. The Brittany sheep are double the size they were fifty years ago, and are worth six times as much money. Sheep.

Ille et Vilaine is the largest butter-producing department, and the greater portion of it is made in the neighbourhood of Rennes. The reputation of Brittany butter was first gained at the farm of La Prevalaye, about two miles from Rennes, and though the name is still used, it is long since this particular farm had any superiority over those in the neighbourhood; the butter made there now is insignificant—only about ten or twelve cows being kept, whereas the name of La Prevalaye is adopted by every dairy within twenty miles of Rennes. Butter and Milk.

The cows are of all the neighbouring breeds—Nantaise, Brittany, Normandy, Manceaux, variously and capriciously crossed; the result, however, is that cows are obtained suitable for the locality, and giving a good butter-producing milk. The feeding, though hardly yet as abundant as perhaps it should be, has made great progress recently, as the introduction of lime has permitted the more extended cultivation of green crops.

The manufacture of butter is yet very imperfect. The churns are of the upright form, and the churning is usually done by the men before going out to work, assisted by a flexible beam weighted with a stone. Few farms have any proper dairy attached to them, and the milk is kept and the butter made in the kitchen, which

Butter.

is, over a large portion of Brittany, the sleeping and living room of all the inhabitants of the farm; but this is becoming remedied as leases fall in, and new tenancies are entered upon.

In well-managed farms near Rennes the butter is made from cream and uncurdled milk, and an average of 1 lb. of butter is obtained from eleven quarts of milk, and not uncommonly that weight is obtained from less than nine quarts. When made the butter is kneaded to extract the buttermilk, and when eaten immediately the flavour is remarkably fine, but the system is bad for any butter that has to be kept, as it soon turns rancid, and as the large dealers who purchase for export have to knead it and wash it over again, it loses in this process very much of its flavour, and ten per cent. of its weight, and although when quite fresh these butters of La Prevalaye may compete with those of Isigny, they are completely beaten by these latter when both are ready for a distant market.

A large business is done at Rennes and at other towns by dealers, who purchase the butter from the farmers, cleanse it, and find a sale for it either in Paris or in the neighbourhood. This Prevalaye butter sells at Rennes at a minimum of 1s. per lb. from May to August, and at a minimum of 1s. 6d. per lb. in winter.

Outside the district of La Prevalaye and over the largest portion of Brittany, the milk is not churned until it has curdled; a spoonful of curd is put into the pots as soon as they arrive in the dairy; all the cream, with all or part, of the curd, is turned into the churn.

This system is pursued more on account of the diet of the people than from any ignorance of the advantage of taking more pains with the process; the curds and buttermilk are sold at 2d. per quart. Butter.

Butter so prepared, or, rather, so unprepared, cannot be of very choice quality; if not salted at once it would become rancid, and it is therefore salted either by the farmers at home, or by the dealers who purchase it at the markets, where it is taken in lumps of about $\frac{3}{4}$ cwt., the salt added amounts to 10 per cent. of its weight; and it sells at 10d. per lb. in summer, and 1s. in winter. Some of the larger dealers have machines for kneading and washing the butter worked by steam-power, which will turn out from 2 cwt. up to 6 cwt. per hour.

The estimated value of the butter-production in Brittany is:—

For Ille et Vilaine	£1,300,000	per annum.
„ Côtes du Nord	905,000	„
„ Finisterre	600,000	„
„ Morbihan	435,000	„

More pains seem to be taken with butter in Finisterre; the cream only is churned, without adding any curd, it is well washed and kneaded and salted at once, and as a result of this extra care, more of it goes to Paris; but the sale of milk is more general than in the other departments of Brittany. New milk is delivered at the houses in all the towns at about one penny per pint, but skimmed milk is more commonly used. There are special milk markets in the towns, and skimmed milk is not allowed to be sold in the south of Brittany

Milk. unless it is previously boiled. It is sold in various states of preparation, the thicker the skin upon it the more it is liked, and it is called by different names, according to the amount of boiling. The peasants in the south consider unboiled milk unwholesome; in the north this prejudice does not exist. Very good cheese is made in Finisterre, but it finds a sale only in two or three large towns; the country people detest cheese, although it is infinitely more nutritive and wholesome than the various preparations of milk above noticed.

Horses. More than one-tenth of all the horses in France (340,000 out of 2,800,000), about one-eighth of the mares (145,000 out of 1,250,000), nearly one-fourth of the young ones under three years (89,000 out of 400,000) are to be found in Brittany; it is the largest horse nursery in the country, and two-thirds of this number are in the departments of Finisterre and the Côtes du Nord. In Finisterre there is a horse upon every eight acres of cultivated land, and above one to every acre of grass. Brittany always cultivated this production. In the seventeenth century there were 20,000 brood mares in the country, and 8,000 to 10,000 horses were annually exported. We meet here again the old tradition of the descent from Oriental blood. The Counts of Rohan have the credit of importing it in the twelfth century, when the Soldan of Egypt presented the then Count with some Barbs; the family kept up the supply from the East, and the small hardy race of the mountain district, in which is situated the castle of Corlay, the

seat for 600 years of the Rohan family, retains, in spite of its degeneracy from neglect and bad food, marked characteristics of its origin. It must be of this breed that Arthur Young speaks so contemptuously when he visited Brittany in 1788, and says every stable is infested with a pack of garron pony stallions, sufficient to perpetuate the breed that is everywhere seen. It is now improving again very considerably from the introduction of Arab or Anglo-Arab blood, and though undersized, there are some capital horses to be obtained here for light saddle-work. Customs die out slowly anywhere, and in Brittany do not seem to die out at all, so the race-meetings of Corlay maintain still a high position for their interest in bringing together the best of the local breed. Horses.

Fashion has had its temporary influence here as elsewhere, and the Danish horse of the last century has left his mark more in the north of Brittany than it has in Normandy.

It is in the centre and south that the lighter saddle-horses are bred; some of the rough half-wild ones are black, but the best are chiefly greys or bright chestnuts; they are well-shaped, broad-chested, with smart easy motion, lively, hardy, and sound; they bear hard work well; their height is generally about thirteen and a half hands, but it is increasing, under the influence of a more careful selection of sires and of better food. Their hardiness is in some degree attributed to the quantity of iron in the water, which is general throughout Brittany.

A pair of these small Brittany horses, and very poor

Horses.

specimens of the breed (for one was stone blind from age and had almost lost the use of his near hind leg), took the writer and two friends, with a full quantity of luggage, thirty miles, returning with one passenger and no luggage over the same ground in the evening of the same day, and covered the sixty miles in fourteen hours, of which less than ten were on the road; the last ten miles home being done in less time than any other ten during the journey, and the pair coming in seemingly as fresh as when they started.

At the show at Nantes in 1874, out of 110 entries of horses only twenty-five were Breton, and they came almost exclusively from Finisterre, the country of this small breed; they all showed their Arab blood, or the Anglo-Arab, and they carried off two-thirds of the prizes; the value of the horses in Finisterre can hardly be less than one and a quarter million sterling.

On the northern coast of Brittany the horses are of a much larger type, not grand carriage-horses, such as are reared in Normandy, at least not generally, though there are some fine specimens, as is proved by the second prize at the show at Paris in 1872 being taken by a pair of Breton horses, which were sold for £328, and by the fine appearance of twelve young Bretons at the same show in 1873, which all made high figures, exceeded, however, by the sum paid for a Breton horse at the show in 1874, when the Duke de Nemours gave £320 for Raglan 2nd; at the same show the first prize for a pair went to a splendid match of Bretons. In 1875 a Breton mare took a first prize, and another a second, and a horse a first as a park-horse.

It is due, however, to Normandy to state that all these horses were descended from Anglo-Norman sires, a type which is influencing the breed of carriage-horses throughout Europe. Raglan 2nd is by Enée, Enée by the Norfolk Phenomenon, his dam by Wildfire, a roan Horses.

BRETON HORSES.

Norfolk trotter, bred by M. Gurgonnec, at St. Sève, near Morlaix. At the show at Landerneau in 1873 for horses bred in Brittany, out of the seventy-two prize-takers in the section for harness-horses, sixty were of Anglo-Norman blood. The same strain seems also well adapted for heavy draught, as at the same show the first prize for both horses and mares in that class was taken by animals whose sires were Anglo-Norman: at St. Pol,

Horses. out of 103 prize-takers, 89 were of the Anglo-Norman race.

Though larger than the horses of the centre, those in the north only run from 14 hands to 15·1, having improved up to the latter point, which the best horses now commonly reach. They are of much the same character as the Percheron; indeed, there has been a continual interchange between the two districts, and the colour is chiefly the same—grey; but the Breton horse has a heavier head, more hair about the heels, broader feet, a heavier frame, he is shorter below the knee, and the pasterns are shorter—in fact, he shows less blood. When crossed with our Norfolk trotters, a breed is established, or likely to be so, which, as an Anglo-Breton, would be as good in its way as the Anglo-Norman; and these Breton horses all trot. Our English draught-horses are not trotters, but the heaviest Breton horses trot well; and this is wanted now, as there are no long journeys with heavy weights; active van-horses are most in request. Though Brittany breeds so many horses, it rears but few; the foals are sold as soon as they are weaned: long strings of them leave the country after the great fairs, and their country knows them no more, nor are they known again as Breton horses. The greys become Percherons, and the bays Normans. Forty-four thousand horses left Landerneau in 1872, and 12,000 are sold at Morlaix October fair. It is well that they should go, as they improve greatly under the treatment of their new masters. At home they receive nothing but parsnips and bruised gorse—it is true they are lightly

worked, the work they do being no more than such gymnastic exercise as one would give to children; but though oats do not exactly make horses, good condition and growth cannot be got without them, and the improvement obtained by this better food would never be reached if they stopped at home. Brittany produces much, but uses little in the way of horseflesh, and she is the promised land of the horse-copers of all the neighbouring provinces. The produce of the 150,000 mares goes to market during each year, and as the great fairs approach, the inns are crowded with the buyers from Normandy, Poitou, and Maine. The blue-eyed jovial Norman is easily distinguished—you may know him by the politeness towards the other guests with which he helps himself to the most tempting morsels at meals: his genial roguery is, however, more agreeable than the cantankerous honesty of his lean and morose-looking competitor from Maine and Poitou. From three to five thousand young horses are sold at each of these fairs. Horse-dealing is horse-dealing all the world over, but it is complicated in Brittany by the ignorance and suspicion of the sellers taking refuge from the sharpness of the buyers in a real or assumed want of knowledge of a mutual language; on their fair-days not a Breton who has a horse to sell understands a word of French, until the bargain is completed; the patience of the buyer, however, always suffices to bring business to an end somehow, though not without an amount of noise from men and horses which make our English fairs seem tame and spiritless. Horses.

Pigs. Pigs are largely bred. The native breed is a great gaunt animal, which picks up its living almost anyhow, but fattens rapidly when put on plenteous food, and kills well. Few are killed by the owners; they are bred for sale, and the buyers don't like the English cross, they say they waste in cooking. It is, nevertheless, making its way rapidly, and probably the waste complained of was owing to bad judgment in feeding. The stock of pigs in Brittany amounts to 500,000; and at the large fairs, such as the one held at Quimper after the Christmas show, upwards of £4,000 worth are sold.

Poultry. Poultry is not so much attended to as in Normandy or in Maine; the money obtained is from the eggs, and not from the birds. Sixty thousand pounds' worth of eggs are sold out of the country yearly, and shipped to England, chiefly from Morlaix.

Bees. The most striking example of reaping without sowing is in the produce of the hives of Brittany. Of inferior colour and flavour to the honey of central France, and carelessly prepared, it sells readily enough, though at a much less price than would be obtained if the bee-keepers would take more pains. The bees are usually killed, and the wax submitted to a strong pressure; it is then placed in casks for sale, and as it contains much foreign matter, it easily ferments. The wax is sold in circular cakes, of sizes from 6 lbs. to half a hundredweight. A hive will bring in from 7s. to 12s. yearly, and many cottagers have from five to twelve hives. The total annual produce of the honey and wax amounts to over £160,000.

ANJOU, MAINE, AND TOURAINE.

"MAINE and Anjou have the appearance of deserts. Ling wastes appear endless here, and I was told I could travel many days and see nothing else; they were sixty miles in circumference, with no great interruptions.

"All that I saw in the two provinces of Anjou and Maine are gravel, sand, or stone, generally a loamy sand or gravel; some imperfect schistus on a bottom of rock; and much that would in the west of England be called a stone brash, and that would do excellently well for turnips: they have the friability, but want the putrid moisture and fertile particles of the better loam. Immense tracts in both these provinces are wastes, under ling, fern, furze, &c.; but the soil of these does not vary from the cultivated parts, and with cultivation would be equally good.

"Touraine is better. It contains some considerable districts, especially to the south of the Loire, where you find good mixed sandy and gravelly loams on a calcareous bottom; considerable tracts in the northern part of the province are no better than Anjou and Maine, and like them it is not without its heaths and wastes."—ARTHUR YOUNG, 1788.

"Arthur Young saw in 1788 much barren heath and waste land which he would not find now. In a few years, if improvement proceeds at the same rate, Maine and Anjou will be in the front rank of national agriculture."—LEONCE DE LAVERGNE, 1866.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
Maine et Loire	509,665	1,780,230	1,140,230	213,765	38,500	136,017	56,532	280,361	69,654	104,388
Mayenne ...	346,397	1,292,655	863,495	178,075	47,827	46,260	92,530	274,400	78,300	82,680
Sarthe	441,860	1,551,667	1,056,312	176,590	25,807	198,675	64,041	183,659	64,499	89,598
Indre et Loire	310,814	1,528,422	863,830	108,050	125,850	239,105	33,184	99,096	331,493	48,574
	1,608,736	6,152,974.	3,923,867	676,480	237,984	620,057	246,287	837,516	543,946	325,240

	Population.	
	Collected.	Scattered.
Maine et Loire	254,144	255,521
Mayenne ...	132,035	214,362
Sarthe	195,278	245,982
Indre et Loire	157,353	153,461
	738,810	869,326

	Corn Crops in Acres. Returns, 1876.
Wheat... ...	1,150,670
Mixed	129,897
Rye	124,232
Barley... ...	328,287
Buckwheat...	39,730
Oats	381,317
	2,154,133
Potatoes ...	197,847

Other Special Crops.

	Acres.	
Hemp	81,465	nearly all in Sarthe and Maine et Loire.
Vineyards ...	211,550	mostly in Maine et Loire and Indre et Loire.
Cabbages ...	42,780	mostly in Maine et Loire.

Population per square mile.

Anjou, &c. ...	169		
France	175		
Anjou, &c. ...	20·22 urban	...	79·78 rural.
France	31·06 „	..	68·94 „

Decrease of population from 1866 to 1872.

Anjou, &c. ...	3·45
France	1·29

Mayenne decreased 4·71, the largest next to Manche.

Proportion of population who can neither read nor write, above six years old.

Anjou, &c. ...	36·03
France	30·80

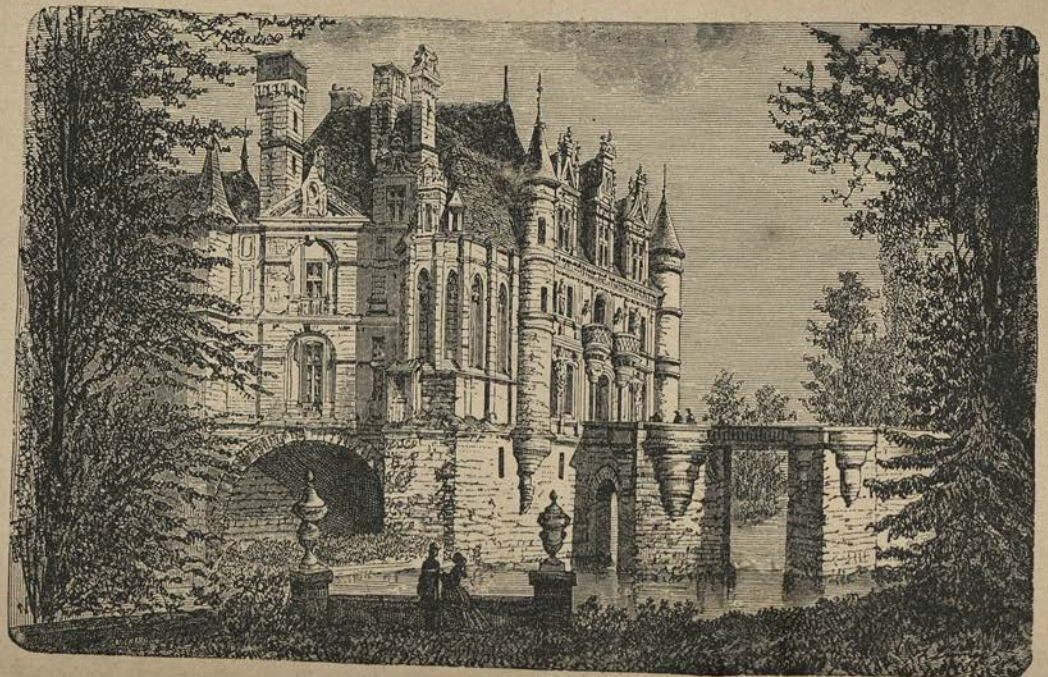
More than 6,000,000 acres of land, of which 4,000,000 are arable, 670,000 grass, 600,000 forest, and nearly 250,000 waste, form the old provinces of Anjou, Maine, and Touraine.

The land is of infinite variety: barren heaths, that bear little besides the broom, which flourishes now as it did when the Plantagenets adopted it as their cognisance; rich soil on the borders of the rivers; granite hills; vast forests, tenanted by bands of wild boars and herds of deer; large districts, so thickly planted with fruit-trees that the country in the spring seems one sea of blossom; small enclosures, surrounded by high hedges; open plains of fine corn-land; multitudes of little grassy hills; valleys watered by numberless rivulets; vineyards on sunny slopes; an extensive system of internal navigation by rivers and canals permeating every part; abundant and well-devised railway communication; excellent roads; farming of all sorts, some of the largest and some of the smallest holdings in France, populous towns; numerous villages; noble châteaux; fine churches; manufactories; water-mills; mines; furnaces; lime-kilns; potteries; marble, stone, and slate quarries, make this country an epitome of France, as France is an epitome of Europe; and throughout all flows that noble river, not a bad type of France herself, now gliding peacefully through the land, now breaking down its barriers, and destroying all before it.

M. Leonce de Lavergne says, "If I had to point out the happiest region of France, I should, without

hesitation, name Normandy." This writer has taught the world so much about his country, that people can form their own opinions on it, and if theirs differs from his, they will feel a kind of satisfaction in such difference, as it implies considerable, if not complete, knowledge of the subject; and Anjou, Maine, and Touraine will seem to many Englishmen decidedly before Normandy in everything that makes life pleasant. "The climate that admits the vine, but is not hot enough for the orange, I consider one of the finest climates in the world;" and this is the climate of these provinces.

Some national prejudice may be at the bottom of this feeling; we never liked our Norman kings, while Anjou and Maine gave us a race of monarchs such as no other country can boast of. From the accession of Henry II. to that of Edward IV. (reputed the most handsome man of his day), no known family offers so many examples of manly beauty, and no ruling family of any country has produced so many popular favourites as that of the Plantagenets of Anjou. Under them we won Cressy, Poitiers, and Agincourt, and better still than these barren and mischievous triumphs, the commons won their liberties, and laid the solid foundations of our free constitution. Fontevraud in Anjou holds the bodies of the founders of the dynasty, Henry II. and his queen Eleanor, that of Richard I., and of the wife of King John; at Le Mans in Maine is the monument of Berengaria, wife of Richard, Maine being her dowry.



THE CHÂTEAU, CHENONCEAUX.

Successive generations have confirmed the Englishman's view of these provinces, and the number of noble buildings of all dates and of every kind of destination is something marvellous. Each village seems to have its château, and no mean one; and every kind of architecture has its representative. The most frequent examples are those of the Renaissance, and it is wonderful that so many should remain, and be in such perfect order—some because they have never been disturbed (the châteaux were not destroyed so wilfully here during the Revolution as elsewhere in France), others because they have been carefully restored. Chenonceaux, Azay-le-Rideau, and Ussé, are known to all the world; they were all built or enlarged in that grand period of the arts, the beginning of the sixteenth century. Lovely as they are, they are only larger representatives of many other buildings of the same date scattered about the country, and, on a smaller scale, equally charming. Many of them have buildings of the sixteenth century with their graceful details, and those of the seventeenth with their noble proportions, wedded to the stern fortress of the twelfth and thirteenth centuries. Montmirail, Le Lude, Courtanvaux, Sablé, Langeais are important instances of this. In the present day the attraction of the country remains unimpaired; new buildings have sprung up, some of modest pretensions but elegant design, others of more importance, and in one instance at least—that of the château at Bourg d'Iré, built for the Comte de Falloux—rivalling in size and grandeur those of any former period.

The elegance of these habitations is not in the buildings only; nowhere is the art of internal decoration so well understood as in France, and nowhere is it better applied than here; the climate and soil lend themselves admirably to all the productions of the garden: flowers, fruits, and shrubs add powerfully to the charms of a residence in this favoured country. There are camellias in Anjou 25 feet high and 12 to 15 inches round the stem; some of them are forty years old, and have stood the intense frosts which occasionally visit the country in the winter, even to the extent of 20 to 25 degrees below freezing-point of Fahrenheit. Cold does not seem to hurt them—snow is their greatest enemy; but snow here, when it falls, melts at once. Frost or snow on the leaves exposed to a burning sun, each drop of water acting as a burning-glass, would ruin camellias: protected from that, they do not fear cold so much as is generally supposed; and in Anjou, when the frost is intense, there is no moisture. Pomegranates, magnolias, and rhododendrons attain the size almost of forest-trees.

Society here has an elegant provincialism different from the provincialism of other parts of France; not dull and dead, as in most of the smaller towns, nor bustling and pushing, as at the ports and the large centres of manufacture, and it is very far from being Parisian in character: it offers, on the whole, the best example remaining of what French society was in its best days. Few fortunes are very large, but moderate and easy ones are abundant; landowners live much on

their estates, and they farm very much on joint account with their tenants, whose holdings are small, and there are very few day-labourers. This association of classes has given a tone to society of all grades, and the peasants in Touraine speak French like courtiers. Four towns—Angers, Tours, Le Mans, and Laval—are the chief centres of the literary and commercial activity of the country. Of these, Angers is the largest; it contains on its boulevards many houses that would not look out of place among the palaces of the Champs Elysées, and a club larger than any in Pall Mall, but whose destination, as typified by the group which surmounts the front, representing arts, commerce, and agriculture, is different from that of the London clubs, and its fine concert-room is remarkable for its good acoustic properties. Tours and Le Mans have also a good contingent of handsome residences, and all three are well provided with buildings for the public service, such as libraries, museums, &c.: the theatre at Tours is especially handsome.

The western part of this district, High Maine and High Anjou, is much wooded; not that there is much forest here, but the enclosures are small, the fields have great hedges with timber in them, and are most commonly planted with fruit-trees. It is a country of narrow valleys and many rivulets, a continuation of the Bocage country of La Vendée; the roads are mere lanes or tracts, between high banks. This excess of shade has its advantage in sheltering the grass, of which there is much, from the scorching rays of the sun. "The

cattle in the Bocage don't want parasols" is a saying in the country. Cattle are largely bred here, but not reared, being sold for fattening upon the better food and richer pastures of Lower Maine and Normandy. The land improves in quality considerably towards the Loire and on the Sarthe. The largest part of the department of the Sarthe is formed of Jurassic limestone, perhaps the richest of all soils, and some of it is of a deep red colour; here the country is more open, and fruit-trees in the fields are not so frequent.

Touraine, south of the Loire, partakes of the bare and poor character of central France, with rounded hills of thin chalky soil; it is desolate, sparsely inhabited, and unattractive out of the valleys. Here the property is in large holdings; estates of from 2,000 up to 5,000 acres are frequent enough, but the land does not let for more than ten shillings per acre. The valleys of the Cher, the Indre, the Vienne, and the Creuse, are rich and occasionally picturesque, but the only part of Touraine that really justifies the title of the Garden of France, sometimes given to it, is the small corner between the Forest of Chinon and the rivers Vienne and Loire, the country called Véron.

Between the river Indre and the railway from Tours to Poitiers is one of the most extensive beds of marine fossils to be seen in France, a prodigious mass extending over 40,000 acres, called Les Falunières. It varies in depth, in some parts being as much as sixty feet. As many as 300 varieties have been recognised: they form an excellent fertiliser.

Farming.

The métayer system of tenancy prevails here extensively; indeed, it is the ordinary system of the country. The conditions vary upon almost every estate. In some cases the division of profit is made in kind, and formerly this was general; but now division of the money product is becoming more common. The landowner frequently finds implements, seeds, and stock, charging the cost to the joint account. This system does not solve the question as to what is the best relation in which landlords and tenants should stand towards each other; but it is universally successful here, where the landlords usually live on their estates. It doubles the capital on the land, and admits the direction of intelligence; it is a true partnership of interests. The farmer has his share in good times, and is helped over bad ones. It appears to be well suited to the habits of the French people in those parts where there are few large undertakings, few labourers living on wages, and where the farms are limited to the extent that one family can work—often as small as from ten to twenty acres in fertile places, seldom exceeding a hundred. In those districts where the land is less good, and where the owners are not resident, some of the worst farming in France is exhibited under this system, and the presence of the métayers is a hindrance to improvement. Maine and Anjou are most favourably situated. There are a sufficient number of large proprietors able to set an example of improvement; and they take a pride in doing so. The Marquis de Talhouët-Roy, at Le Lude, owns 10,000 acres, and he has quite trans-

Farming. formed the property since it came into his possession; there are others who approach him in the number of acres, and are not below him in the good work they are doing. These large properties are exceptional; the general size of the estates is such as will bring in an income of from £200 to £400 a year; and the management of them is greatly influenced by what is being done upon the larger properties. Improvement has been daily progressing since the time when Arthur Young crossed this country just before the Great Revolution, and found the land covered with wild heath seemingly without end. He was assured that he might travel there for days, and see nothing else in a circle of 150 miles. He visited one landowner, who had bought an estate of 3,000 acres, with a grand château and large outbuildings, for £12,000; but the land was in cultivation, and planted and stocked, and the château furnished; which gives an idea of a very low value for the rest of the country. The thousands of peasant proprietors now drawing comfort and wealth from this land do not remember personally the former state of the country, but they have heard it described by their fathers; and distance lends no enchantment to the view.

Barley. The character of the soil and climate is shown by the produce; of the 4,000,000 acres of arable land, more than 1,000,000 are under wheat, and 300,000 barley. The barley is not a poor substitute for better corn, but some of the best in France; the Sarthe barley being

well known and esteemed, and largely bought by the English brewers. The miserable makeshifts of rye and buckwheat are now but little grown, and that little is decreasing yearly. Nearly half the arable land is devoted to crops bearing a high money value—such as hemp, of which there are over 80,000 acres, 30,000 being in Sarthe—more than in any other department. Of cabbages there are 43,000 acres, 28,000 of them in Maine et Loire, the largest of any department in France. There are 212,000 acres of vines, nearly all in Maine et Loire and Indre et Loire; and the produce sells for nearly £1,500,000 sterling to the growers. And a very considerable area is occupied in the growth of vegetables, that are packed in tins and sent to all parts of the world—such as peas, tomatoes, French beans, &c. There is an enormous consumption of these through the winter months in France itself; and there is hardly a grocer's shop in the United Kingdom but has a supply of them, or a passenger-ship leaving any port in Europe but has them as part of her stores. Jerusalem artichokes are greatly cultivated as food for cattle, both the roots and leaves being used. They yield sometimes as much as 400 bushels per acre, but this is exceptional; and they do well upon thin sandy soil. Green maize is a great resource in a country where the heat is too great for pastures anywhere but on the banks of streams or under shade, and is much grown. Two thousand acres of pumpkins, yielding forty tons per acre, aid considerably in the nourishment both of man and beast; clover, rye-grass, onion-seeds, liquorice, aniseed, and coriander, bring

Hemp.

Cabbages.

Vines.

Vege-tables.

Arti-chokes.

Maize.

Pumpkins.

Grass-seeds.

in much money to the country; and there is no small return from the many hundreds of acres of land devoted to the rearing of garden and orchard-trees and plants, which not only supply France, but are exported largely, even to America. Orders for camellias by the thousand are received by the florists of Angers; and the apple and pear-trees reared there have a world-wide reputation. MM. Le Roy, at Angers, use 500 acres in this cultivation. Their catalogue contains a list of 3,000 different kinds of fruit-trees, and of 4,000 forest and ornamental trees and shrubs. It may seem that only a moderate proportion of these fruit-trees are really valuable; but they have all produced fruit, which has been tasted, and they have special qualities which render them useful for planting in various climates and soils, and for coming into use at various seasons: any not used in the business, or not likely to be used, would soon be discarded.

Orchard-trees.

Fruit-trees.

The abundance of fruit-trees interferes much with the growth, and especially with the even ripening of the corn, though less than it would in the damp climate of England. The produce costs so little that they are not likely to diminish; but it is doubtful if there is not more lost than gained by their presence. At the small town of Château du Loir chestnuts are sold to the value of £4,000 yearly, and many others must have a trade equal to this. Most of the oil used through the country for table and other purposes is from walnuts; besides which, many thousand sacks are shipped to England.

Chestnuts.

Walnuts.

The yield of the arrondissement of Chinon is 200,000 bushels yearly. During the season the railway stations are piled up with packages of ripe fruit, apples, pears, strawberries, cherries, apricots, peaches, and plums. Touraine sends yearly to Paris, England, and Russia 5,000 tons of apples, 1,000 tons of pears, 65 tons of strawberries, and 80 tons of cherries. The dried plums of Tours have a great celebrity. A good tree will yield 35 to 40 lbs. of green fruit, equal to about 10 lbs. of dried. The choicest quality, which run about fifty to the pound, make only 1s. per pound retail, after all the expense of drying, packing, and carriage. They are dried first in the sun, and afterwards in stoves gradually, requiring to be withdrawn and put back into the stoves sometimes as often as six times. The arrondissement of Chinon produces 300 tons of dried plums yearly, which give £8,000 to £10,000 to the growers. Fruit.

The whole of this country has made great advances during the last few years. Railways have rendered the delivery of manures easy, and have opened up markets for the disposal of perishable produce, such as fruit, which until the railways were established wasted yearly by tons. By this time it is perhaps second only to the north of France in pure farming—that is, corn and cattle growing, and has this enormous advantage over the north, that it is not overdone with population.

The population of 1,600,000 is small for the area, being only 169 to the square mile. The average of Population.

Population. France is 175. Normandy, we have seen, is over 189, and Brittany 220. This indicates, among so much agricultural wealth, a large amount of personal comfort: 739,000 are returned as living collected together, and 870,000 as scattered; but the scattered population is not isolated as that in Brittany, the productions of the soil causing communications to be more frequent. Rather more than 20 per cent. are urban, and nearly 80 per cent. rural, and the same peculiarity is noticeable here as in Normandy, that in a wealthy and prosperous country, the reduction of population since the last census should be large—viz., 3·45 per cent. The occupations of the people are mainly agricultural, the manufactures being almost exclusively connected with the produce of the land. Linen is made from home-grown flax, sail-cloths and sacking from the hemp, and almost wholly at the workmen's homes. 12,000 to 15,000 workmen are engaged in this branch of business at Laval, and in the neighbouring villages. There are many tan-yards and lime-works, some iron-foundries and paper-mills; water-mills enliven most of the streams. 3,000 to 4,000 men are employed near Angers, quarrying slate. 50,000 to 60,000 workmen, spread about in 120 villages round Cholet, make up flax and wool into linen and druggets, and the cheap handkerchiefs for which that place is celebrated. Saumur employs 600 hands in making enamels, chiefly for chaplets. Tours makes silk for furniture, and has a celebrated printing-office, employing 1,200 workmen, and which can turn out 15,000 volumes a day. Le Mans is the seat of a large

manufacture of preserved vegetables. Few of these occupations require the concentration of people in large numbers in factories, and they have most of them some time to attend to their small patch of ground. But the chief trade of the country is directly in the export of agricultural produce, corn of all kinds, grass, seeds, hemp, wine, cattle, and poultry, and this trade is purely rural.

Education.

In point of instruction, as judged by the proportion of those who can neither read nor write above the age of six years, this region is below the average of France, it being a trifle over thirty-six per cent. France is a little under thirty-one; but there seems a natural culture which disguises or rises above this educational deficiency; and Touraine, which exhibits this deficiency the most largely, having more than forty-three per cent. of its population in the state of ignorance indicated, possesses the natural culture in the most eminent degree; but the people all through Anjou, Maine, and Touraine, are above the average of the world in the neatness of their persons, and the cleanliness and comfort of their habitations.

Cattle.

The cattle in Anjou and Maine (Touraine may be omitted, as it has so few) has always been reared for the value of the meat. Little of the farm-work is done by cattle, nor is much butter made; so there is no clashing of interests between those who want working-oxen or milking-cows and those who want an animal primarily

Cattle.

for the butcher. Maine et Loire sends most fat cattle to the Paris market, next to Calvados; but, unlike Calvados, the cattle are home-bred, whereas in addition to its own supply Calvados buys much in Anjou and Maine. A large part, indeed, of the cattle reared in these two provinces is fatted on the pastures of Normandy. This business is not so advantageous as it ought to be, as the beasts are often three or four years old before they are sold lean, whereas they ought to be fit for the butcher at that age, and would be if the breeders were more careful in their winter treatment of their beasts.

The breed is a local breed of doubtful purity—the Manceaux—but has been so much crossed with the shorthorn that any signs of a native race, if there ever were one, have disappeared. The shorthorn blood has quite taken the pre-eminency, and at the markets the majority of the stock on sale might have come out of Northamptonshire. It is here, and here only in France, that the shorthorn has been accepted without contestation; the breed has really become shorthorn. There is no establishment of a distinct race as the Nivernais, which is really the outcome of a cross of the Charollais and shorthorn, but an absolute conversion of an inferior meat-producing race into a superior one, and the English shorthorn has been the factor. The western part of Anjou is the chief breeding locality, and the beasts are fatted in the eastern part and in Maine. They have good carcases, and are particularly good in their fore-quarters, but are usually beaten in the

Paris shows by the cattle from Nivernais, whose hind-quarters are superior. Cattle.

There are some fine herds of shorthorns in Maine and Anjou; that of the Comte de Falloux is considered the best in France. The Marquis de Talhouët-Roy—at Le Lude, on the borders of Sarthe and Maine et Loire—the Marquis de la Tullaye, and Baron Guay, have some fine animals; but good specimens can be seen on every important farm. Sales are held frequently at Le Mans, and twice in each year at Laval, of stock either imported direct or descended from imported parents, under the auspices of the local agricultural societies, and in some cases at their risk, usually when that is the case resulting in loss; but by this means the breed has been greatly improved, and the shorthorn has added enormously to the value of the breed in Maine and Anjou. The Bates blood seems to be preferred to the Booth.

At the October sale at Laval, in 1876, fifty-seven animals were offered, and the best were sold to buyers from Sarthe, from Charente, and even from the far-off department of the Rhone. The prices reached £24 to £40 for yearling bulls; one calf of five months old made £29; several cows £24 to £36. Four hundred entries are made yearly in the French shorthorn herd-book from the department of Mayenne, which, with Sarthe, is considered the centre of shorthorn breeding in France.

A competent judge, M. Sanson, professor at the Agricultural College at Grignon, says that the shorthorn in Maine and Anjou diminishes in size, and that not

from any unsuitableness of soil or climate, but from too poor feeding in winter. He puts the deficiency at as much as 25 per cent. below the general average of the breed elsewhere; he does not say in England, so presumably he alludes to France, and probably he means that this is the loss comparing stock well done to with that badly fed.

Poultry. Maine, however, is proud of its poultry, and justly so. There are nearly 3,000,000 head in the district, and immense quantities are sent up to the Paris market. The kind almost exclusively used is that of La Flèche, considered the best-flavoured bird in France. It is said to be rather delicate, or rather not to succeed so well in other places as it does at home. This reputation for quality is of old date—so old that the memory of man runneth not to the contrary.

Bees. Sixty thousand pounds per annum are gathered from beehives, a pure gift of nature realised without cost, and as the reward of little care.

Wine Vineyards bring in most money from the smallest area: there are but about 200,000 acres, and they produce to the growers not much short of a million and a half of money. They are mostly on the slopes of the Loire valley, and are held in very small patches, which are managed entirely by the owner and his family. A very small bit suffices to keep such a family in comfort, and there is hardly a vineyard

proprietor among them, however small his property may be, but has some savings invested in a government loan, while many of them are really rich.

Except in Mayenne, there are no more horses than are used in ordinary farming work, but Mayenne partakes of the horse-rearing capacities of it neighbours, Orne and Manche, and, like the latter, sells its young stock as soon as weaned, for conversion into Normandy horses. Horses.

The sheep are too few in Anjou and Maine to call for much notice. This ought not to be, as "there is not a country better calculated for sheep than Anjou; it is all dry sound sand and gravel, and not too poor." They seem, however, to be increasing in quality, if not in numbers, and at the show at Angers in June, 1877, the entries of Leicesters were so large and so good that supplementary prizes had to be given. There are large flocks in Touraine of the type of sheep from Berri and Poitou: they are reared upon the bare sheep-walks and chalky downs, and are of poor quality; but improvement is reaching them, and some of the best Berri sheep at the Paris show in 1877 came from Touraine. They were exhibited by M. Duval from a very poor part of the country near Loches; his name is a new one as a breeder, but he promises well. Three of his Berri sheep under thirteen months old weighed an average of 143 lbs. each; and another three an average of 133; his Southdown crosses weighed at the same age 155½ lbs. and 147 lbs. each. Sheep.

POITOU.

"Poitou is an unimproved, poor, and ugly country. It seems to want communication, demand, and activity of all kinds, nor does it, on an average, yield the half of what it might. The lower part is of a fertility that deserves to be classed with the richest soils of France."—Arthur Young, 1788.

"Large tracts of uncultivated land are still found here, but improvement has penetrated, and everything is rapidly changing. Barren heaths are disappearing yearly."—Leonce de Lavergne, 1865.

Poitou.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
Vendée	397,393	1,675,872	1,430,020	299,882	21,327	78,040	24,825	365,588	342,016	49,507
Deux Sevres...	327,373	1,499,967	1,055,942	130,000	20,667	91,212	31,708	173,386	167,301	70,150
Vienne	315,860	1,742,592	1,029,232	103,152	199,420	213,887	35,100	76,428	495,454	62,631
	1,040,626	4,918,431	3,228,194	533,034	241,414	383,139	91,633	615,402	1,004,771	182,288

	Population.	
	Collected.	Scattered.
Vendée	177,815	219,578
Deux Sevres...	155,422	171,951
Vienne	150,774	165,086
	484,011	656,615

Corn Crops in Acres. Returns, 1876.	
Wheat... ...	1,096,520
Mixed	68,252
Rye	81,185
Barley... ...	187,992
Buckwheat...	19,415
Oats	188,172
	1,645,536
Potatoes ...	99,137

Asses ... ... 12,358, in Vienne.
Mules ... ... 10,653, in Deux Sevres.

Population per square mile.

Poitou	138
France	175

Poitou	14·45 urban	... 85·55 rural.
France	31·06 „	... 68·94 „

Decrease of population from 1866 to 1872.

Poitou	0·86
France	1·29

Proportion of population who can neither read nor write, above six years old.

Poitou	45·5
France	30·8

A range of granite mountains, too ambitiously called the Vendéen Alps, runs across Poitou from north-west to south-east, and has quite sufficient attractions of its own to make it independent of any reputation to be gained by borrowed names. The hills at their highest points are only about 900 feet above the level of the sea, but they are well wooded and watered, and have fine views overlooking the country towards the sea and the mouth of the Loire, the old Duchy of Retz, which, with these mountains, was the territory of the famous Gilles de Laval, the original Blue Beard of nursery tale. His castle of Pouzauges commands a view of the whole country from the towers of St. Pierre at Nantes, fifty miles away, to the borders of the sea, sixty miles distant, and sister Anne had every chance of seeing the cloud of dust caused by coming help, from the top of the donjon towers, whose walls of enormous thickness

"Stand there to this day,
To witness if I lie."

Covering the northern end of these mountains, and extending over the north of the departments of La Vendée and Deux Sèvres, and into that of Maine et Loire, is the Bocage, the true Vendée, which has obtained an undying name in history. No country could be more suited to the purposes of an insurrection of undisciplined peasantry against trained troops. Small fields of from two to eight acres are surrounded by hedges six to nine feet high, thickly planted with fruit-trees, or with pollard oaks; the roads are mere deep narrow lanes forming an inextricable labyrinth in which strangers become easily bewildered,

and where the soldiers fell an easy prey to the insurgents, who knew every inch of the country, and who were used to handle a gun from childhood. The hedges take up a full yard, and another yard is lost to the plough from the presence of roots of the trees; there is much grass, carefully improved by irrigation where springs permit its use.

The aspect of the country has not changed since the wars of the Revolution, except by the creation of over 200 miles of high roads, by the making of railways, and by the improvement of the small ports on the coast. La Vendée, from being the worst among the departments of France in respect of its road communications, is now one of the best; these new roads cover 1,000 acres of land, and they absorbed or reduced as many as 7,000 different holdings.

Soil. To the eastward of the mountains the country partakes of the character of Central France; some of the land is very good, but there is much poor clay, barren heath, and waste. On the west, after leaving the Bocage, there is a great extent of good land with chalk subsoil, farmed chiefly by small owners, producing corn far beyond local wants; it is, indeed, the part of France which has the largest surplus, and Poitou exports yearly over 1,000,000 quarters of corn, chiefly wheat. Some of this land is of astonishing fertility, and bears corn for five or six years consecutively with little or no manure. After harvest the roads to the ports and to the railway stations are alive with great wagons heavily

laden with corn, each drawn by three pairs of Parthenay oxen, themselves the colour of golden grain. Here wheat is everything, cattle nothing. The marshes of Poitou, between this corn-land and the sea, cover a space of about thirty-five miles by twelve, and they extend into the department of Charente Inférieure for seven miles more. They are of comparatively recent formation, and in the twelfth century the sea extended to the foot of heights which are now far inland. The sea still continues to retire, or the land still upheaves, and it is reckoned that about seventy acres are added to the marshes every year. It is almost within the memory of people now living—certainly they hold the knowledge from those who immediately preceded them—that ships have discharged at piers which are now in the middle of green fields, and piles with rings in them for mooring ships are met with a long way from the sea. Five miles from the coast, and at a considerable elevation above the sea-level, there are many beds of shell-fish of the same nature as those found on the coast at present. The largest of these is 700 yards long by 300 yards at the base, and from thirty to fifty feet high. Many of the shells are quite perfect, having the valves united by ligaments, and have not changed colour; they still contain some animal matter, the remains of the fish that formerly filled them. The villages and farmsteads are built upon elevations, mostly of chalk formation, which were at one time islands, and are still called so, and, indeed, often become so again during the winter floods; the small area of land on them is remarkably fertile.

On these islands, and on points of land which the sea at one time reached, there are enormous deposits of ashes, some as much as nine feet thick, and which cover many acres; when not upon an island, they are always found near a stream, and they rest upon the hard clay subsoil, which formed the bottom of the gulf when it was covered by the sea. Occasionally the clay superposes the ashes, and sometimes alternates with them; evidences of human habitation are found among the ashes.

Nearly 20,000 acres of these marshes are undrained, and they are covered with reeds almost like a forest. Two sorts are chiefly grown, and they bring in a revenue of from 30s. to 50s. an acre; the reeds are used for thatching, and for strengthening the dykes. There are also here extensive salt-works.

Holdings. There is great variety in the size of the holdings in this fen-country. Where the land has long been drained, and has become solid, the holdings are small, seldom exceeding 50 to 100 acres, but in some cases reaching 400 or 500 acres, which latter are rented by farmers for a money-rent of from £400 up to £800 per annum; where they have not been long or are not wholly drained, and where the land is sound only on the surface, as is the case with much of it, the holdings are much larger, extending to 2,000 acres. A great deal of the sound land is very stiff, but fertile, yielding a good return without manure. As many as from eight to ten oxen are required to plough it up into rough ridges. Two-thirds of the land is under grass, much of

it as good as the pastures of Normandy; and one-third under wheat, winter barley, or beans, of which last a large quantity is grown.

The whole marsh-country is cut up into squares, divided by ditches, which are usually from six to nine feet wide, and four or five deep, secured by embankments; they vary, however, considerably. Through them a limpid stream glides gradually to the various outfalls, sometimes over aqueducts, and under the shade of pollard trees, with which the dykes are almost always planted. Fens.

The drainage is far from perfect, as during every winter the rivers which cross the marshes partially overflow them, and the water does not completely subside before the month of May. In March a coarse but succulent grass grows in prodigious quantities, which the half-wild cattle greedily devour, standing with the water above their knees during whole days. When the waters have all drained off an abundant pasture quickly follows, which is eaten down. A month or six weeks is long enough to grow and mature a heavy crop of coarse hay, to which succeeds a luxuriant vegetation, forced by the extreme heats of summer from a moist soil, which lasts until the usual winter inundation. It is hardly possible to conceive an existence more miserable than that of the inhabitants of the undrained or partially-drained marshes during the winter. The marshman lives in his punt; in it he tends his cattle, takes his produce to the nearest market,

Fens. spreads his nets, collects the reeds which feed his cow, thatch his hut, and, mixed with mud, help to build it. In his punt he watches for the wild fowl which come in winter over the still waters in countless thousands. At night the punt floats into the hut, where the family and the cow find shelter side by side. At times of heavy floods the household takes refuge in the punt, cooking, eating, and sleeping in it as it floats upwards to the roof on the rising waters. From earliest life to death the punt is the marshman's home. As a child he is carried in it to the baptismal font; in it he brings home his bride; and when his last hour has come, the holy emblems are borne to him over the waters, and his body is taken to the burial-ground in the punt in which his life has been passed.

Through the whole marsh there is no fuel but that formed from the dung of cattle tempered with water and mixed with chopped straw or reeds, and which fills the hut with a pungent smoke.

Population. The population of Poitou is small, being only 138 to the square mile, and is returned as being 484,000 living collected together, and 657,000 as scattered; in La Vendée especially the population is solitary. The towns are few and small; the largest in Poitou, the capital of the province, having only 30,000 inhabitants, and the most important town in La Vendée numbering less than 9,000. The occupations of the people are chiefly rural, only 14·45 per cent. being classed as urban. Such a population, unless under the influence of some

special cause, does not change much; but Poitou has not escaped the general decrease of France; it, however, only amounts to 0·86 per cent.

Education is below the average, 45·5 per cent. of those above the age of six years being unable to read or write.. Education.

Poitou has given its name to a giant cabbage largely grown through the west of France. There are three sorts, none of which form heads, but the stalk of one kind is filled with a soft pith, which is very nutritious; this kind is less hardy than the other two. On small farms, where the leaves are carefully gathered by the family of the farmer, five tons per acre are obtained in the autumn, half that quantity at the end of winter, and, when the plants are finally cut down in the spring, they yield from seven to ten tons, including the stalks, which are chopped up. On larger farms the produce is less, as the expense of these successive pickings would be too heavy with hired labour: the plants here are cut down at once when wanted, and the yield is from eleven to thirteen tons, from about 5,000 plants per acre. The leaves are always given to the cattle mixed with dry food. The growth of cabbage is extending into the centre of France, where much waste land is being broken up and brought into cultivation. Roots, with the partial exception of kohl rabi, do not succeed, and cabbage is found to be the best first crop on fresh soil. Cabbages.

Beet. Sugar-beet has not yet been grown in the west of France except experimentally, but the refiners of colonial sugars at Nantes, finding their trade leaving them in consequence of the production in the north, have started a company (1876), with a capital of £400,000, to establish manufactories of raw sugar from beet in the departments of the west of France, which will include Anjou, Maine, Touraine, Poitou, and Brittany; the direction is formed of the leading sugar-refiners of Nantes, and some of the principal merchants. It seems rather a bold undertaking in the present condition of the manufacture, but it is based on the experience of M. Etienne, head of a large sugar-refinery at Nantes, who has worked a manufactory on his estate near Palluau, after assurance that the soil was suitable for the growth of sugar-beet. The trials extended over a period of twelve years, and have resulted in the conviction that a minimum crop of twelve tons of root per acre may be depended upon, the crops having varied from twelve to twenty-four tons. A crop of twelve tons per acre, selling on the spot at 14s. 2d. the ton, would yield a gross return of £8 10s. per acre, in addition to which the pulp would be returned free of charge, thus giving back about six tons of good cattle food. This result may be obtainable profitably in the west, where rent and labour are both much cheaper than elsewhere in France, and would cause quite a revolution in the farming of La Vendée. Instead of selling their stock lean to the dealers for fattening at Cholet, the farmers would be able to stall-feed at home, thus gaining a good supply of manure,

which will increase their corn-crops by a third, or even double them. It may be expected that there will be an additional return of something like £3 per acre, not only in the year in which the beet is grown, but also in that in which corn will follow it.

Among the smaller articles grown, small by comparison with corn and grass, but important from the amount of money they bring in to the small landowners, are the angelica plant near Niort; garlic and shallots among the sand-hills on the borders of the sea near Aiguillon; rape upon land flooded during winter; flax upon the reclaimed land, and upon chalk; hemp largely in the fens; sorgho, a kind of maize, from the seed-branches of which enormous quantities of brooms are made; fenugrec, a plant the aromatic seeds of which are used to finish off the fattening of cattle and mules. The nature of the soil and the warmth of the climate in most parts of France allow the growth of these various kinds of produce, all requiring close and constant attention, and so enable owners of small lots of land to make a profit, which it would be impossible to make under corn cultivation. Smaller Produce.

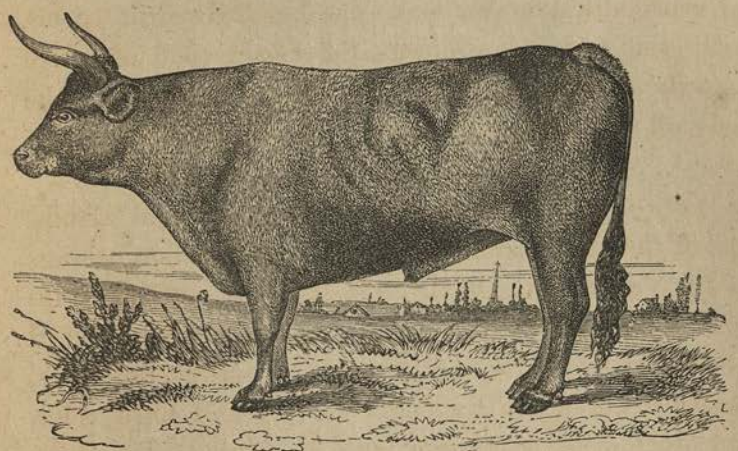
Fruit-trees, as chestnuts, walnuts, plums, almonds, pear-trees, and apples, occupy a great deal of the land, and realise a considerable income, though the yield from each tree appears extremely small. There is certainly no expense attending their cultivation; but upon good soils, and with improved farming, it is probable that, Fruit.

considering the loss of the ground occupied by the roots, and the injury to the corn caused by the shade, they are really unprofitable. It is reckoned that a good walnut-tree will produce thirty-five bushels, weighing one hundredweight; and as it takes two hundredweight of crushed walnuts to make one hundredweight of oil, selling at forty-five shillings, the money yield of a tree is only about twenty-two shillings. Walnut-oil is the only oil in general use through the country.

Islands. Off this part of the coast of France are several islands, one of the most important, that of Noirmoustier, belongs to La Vendée: Originally a rock, it has gradually increased by the deposit of mud, and can now be reached by land at low water. It contains about 11,000 acres, two-thirds of which are below the level of high tides, and much of it is covered with sand-hills. There are 3,000 acres of salt-marshes, and about 6,000 acres are very highly cultivated. Fisheries, salt-works, the coasting trade, and some vineyards, bring much wealth to the 8,000 inhabitants, who mostly own the land they work, and when any bit is to be sold it makes readily enough more than £80 per acre. Perhaps in no part of Europe can there be found a people more "before the world" in all their wants than the inhabitants of these islands.

Cattle. Poitou has a special breed of cattle rarely met far from its limits, except at fat-stock markets, and preserved within those limits from any cross with the most scrupulous care. Down in the fens, up among the

wooded heights, and in the plains, the same kind of cattle is seen. Known under the general name of Parthenay, they show no difference to the eye of the uninitiated, but to those who breed them there are at least three distinct types. Cattle.



PARTHENAY OX.

They are all of the same colour, that of ripe corn, with black legs and muzzles, and tapering horns slightly turned upwards, but the breed in the fens is bony, rough, and coarse; that in the upper country fine and delicate. The difference arises from difference of treatment. In the fens the cattle are herded for three winter months in close dirty hovels, barely kept alive with straw and coarse hay. As soon as the waters have drained off in March, they are turned out, young and old together, into the half-liquid mud, in which they lie for some weeks. The warmth and dryness of April

Cattle. and May furnish a supply of nourishing food, and in an incredibly short time the ragged, dirty masses of skin and bone become handsome well-covered beasts, which sell readily to the grass-farmers of Normandy.

The relatives of these ill-treated beasts live quite another life upon the hills of La Vendée. Their parentage is carefully selected; nourished with abundance of milk from the day they are born (for the Vendéen farmer considers that no milk, or any produce from milk should leave the farm), they never quit the shelter of the homestead. The females are kept at home for breeding, the males are sold to other farmers who do not breed, small farmers who buy more young animals than the work of the land really requires, and who train them gently for the harder work that may come to them as they grow older. That harder work, however, never really comes, as all through the life of the Vendée ox the master is careful never to overwork him, or to work him too long; his destination is the fat-cattle market, and while taking all the profit he can out of his animals this destination is never lost sight of. Six and eight oxen are employed to do the work of two or four; the Vendéen farmer cannot have one set of animals for his work and another for his profit, and he tries his best to combine the two, and with success, for when the autumn labour is done, and the corn delivered, the stock put up to feed through the winter lay on flesh rapidly, and find a good market with the buyers in the rich farms near Cholet, who finish them off for Paris, upon natural food, farm produce, not upon

PARTHENAY OXEN.

beetroot pulp, or cake, which the Cholet people declare give a detestable flavour to the meat, and on this account no cattle are more appreciated. Cattle.

The Vendéen cattle are the purest of the breed called Parthenay; indeed, the Vendéens rather complain that writers will persist in calling their stock Parthenay, and no race in France has had more honour from artists and authors. The beautiful colour of the well-cared-for portion of the breed; its coat shining with careful grooming; the large, full, soft eye like that of a deer, fringed with a soft, pearly down, and surrounded by a dark rim like a pair of spectacles; the delicate head; the black muzzle, also fringed with the same pearly down, have attracted the notice of writers who do not look beyond the beauty of the animal about which they write. The breed, however, deserves, from its inherent qualities, all the good that has been said of it, and its outside comeliness is a real indication of its true worth. Brought up in close communion with its owners, never sleeping out of the stable, well fed and gently worked, it hardly ever feels a blow or hears a harsh word. Should a couple in a moment of forgetfulness give way to anger and cross their horns, they are not separated by blows, the goad is thrown aside, and the owner, darting into the midst of the fray, seizes each by a horn, and turns them away in different directions.

It has been said that the breed is kept remarkably pure from any cross, but the irrepressible shorthorn has found advocates in that part of the district most influenced by the demand for fat stock, viz., the neigh-

Cattle. bourhood of Cholet. This is the great fatting district of Poitou, and the Parthenay cattle fatted here are known in Paris as Choletais. Thirty to forty thousand head of stock are fatted close round Cholet every year, and in the markets of that town 100,000 head of horned stock, 150,000 to 200,000 head of sheep, and 25,000 to 30,000 pigs are sold yearly. This shorthorn cross, however, makes no material progress; at present the produce of the land is not sufficiently abundant, and if this difficulty were overcome, which would be quite possible, though probably at too great a cost, the local requirements are against a change: the farmers want working oxen, both for labour on the land and for delivering produce, which is taken to the ports and stations in heavy wagons drawn by six, eight, or ten oxen, and they keep at such work for a whole day as would knock up a shorthorn in half an hour. The increased value of meat has brought about an improvement in the treatment, and earlier maturity is obtained by careful selection of sires and better feeding: the oxen are no longer worked so hard as to become difficult to fatten, nor until so old as to become incapable of being turned into good meat. The result of the good feeding of the Parthenay cattle, necessary to maintain its high condition so as to obtain the maximum of advantage from the work, while keeping it in a proper state for rapid fattening, is that the gross and net produce per acre is superior to that of the shorthorn in Maine, where reliance seems to be placed too much on the breed, and too little upon proper food. The market has also to be considered, and a shorthorn

cross spoils the sale of a Parthenay ox; the breed has so good a reputation on the Paris market, that it must be presented pure, or it will not make the full market value. Cattle.

The feeding at Cholet is performed by hand, from five in the morning until eight, when the stables are closely shut up until five in the evening; the feeding begins again at five and continues until eight; during the six hours the attendant gives such food as the cattle take to, beginning with good hay, varying it with mangold, cabbages, &c., alternately, as the animal seems inclined to take it.

As all farm-work south of the Loire is done by oxen, as the climate does not readily permit the growth of rich food, as the breeds already in the country are good for work, and also for the butcher, as rapid maturity is not essential to profit, because the cattle are earning their keep while they are growing, the objection to the shorthorn cross is based on reason, and the river Loire may be considered the boundary beyond which this cross will not generally penetrate.

Where green crops can be grown so as to make the rearing of cattle for meat a profitable speculation, workers will be kept separate, and cattle will be reared with a special object, and the rapidly-maturing shorthorn will here, as elsewhere, find its place as the only "improving" breed; but this can hardly be upon the small farms of five, ten, or fifteen acres of this country, which have quite enough to do to feed the cattle already upon them—the farmers must content themselves with fostering the disposition to more early maturity, while

Cattle. they preserve the power in their stock of doing the work required from them; and carefully-tested experiments have shown that, of all the various breeds in France, that of Parthenay unites in the highest degree aptitude for work, quality of meat, and production of milk, and according to evidence gained by competitive trials, the Choletais breed gives less offal than any other.

Five hours a day of steady work is enough to pay for the keep of a bullock, but much more than this is got from those used in team-work; an average-sized ox will easily do fifteen miles in eight hours, and some kinds will travel much faster. Down on the Landes, near Bordeaux, and in Spain, bullocks can do fifty miles in a day and a night, and will trot along for a considerable time as well as a good horse, without blowing.

The great advance in the value of working oxen is keeping back the progress of the shorthorn: a good pair now (1875) sells for at least £55; three years ago they would not have made more than £36.

Sheep. If Poitou has a breed of cattle of which the country may be proud, as much cannot be said for the native sheep, which are about as bad as they can be. They have big heads and long necks, both quite bare; the wool is coarse and curled, and seldom grows more than half-way down the body, none appearing on the belly or on the limbs, which are long and bony—clearly a breed meant for walking far to get its food, which it does largely about the highways and hedges. The farms are so small that it can hardly be said that

there are any flocks; but on the borders of Poitou, in Vienne, which approaches central France, the great sheep-producing country, sheep enter more largely into farming, and they are more of the type found in Berri; and on the west, in the fens, the farms and Sheep.

POITOU SHEEP.

flocks are also large. Here the sheep are big, great consumers of food, and more frequently than most sheep in France drop a couple of lambs; a cross with the Leicester has been used with some success, but probably that with the Romney Marsh would be more suitable.

The common race of pigs is also bad, but large numbers are bought in Brittany and Maine, chiefly of Pigs.

Pigs. the Craon breed, and fattened in Poitou, about Cholet. The English cross has been tried, but has ceased to be in favour. The cross improved the fatting powers, and there was less offal; the lean was acknowledged to be more tender, but there was too little of it, and the fat wasted in cooking. The firms in Nantes who salt large quantities of pork refuse pigs with an English cross; they will buy only the Craon, whose ears are pendant, and any divergence on this point, which would be evidence of English blood, would interfere very much with the selling value. The English are considered also more delicate than the Craon, and when any disease is about they become unsaleable. This wasting of fat is probably owing to the food, and better judgment will allow of prompt fattening properties being retained, without producing the sort of fat that runs away in grease. This result is already partially attained, and the cause of the objection to English blood is diminishing. Here, however, as elsewhere with other animals, the competition of the English has produced improvement in the local breed as regards maturity, and the Craon pigs are now brought fat to market at from eight to twelve months old.

Hounds. Another animal, most unusual to find among those in a farmyard, comes into the ordinary stock of a Vendée farm, and that is the hound. They are reared on the small farms, and it is considered more profitable to rear a hound than a calf. They are sold at large fairs held on the second Mondays of May and July, and

POITOU HOUNDS.

will make from £4 to £6 at from six months to a year old. The true Vendée breed is white with black-and-tan marks. They stand from twenty-five and a half to twenty-seven and a half inches high, their heads are clean, the ears not over long, the chest is deep, the loins arched, the tail fine, the ears and the palate are black, their nose is good, voice deep, and wind excellent; they will keep on the scent for a long time, and pick up a cold one. There are varieties in the breed, but the above qualities characterise each one. There is also a rough-haired breed, hardy and very powerful. The King of Italy supplies his kennel from La Vendée, and his agents are said to spend £300 to £400 yearly in this sort of farm produce. The chief packs in the country are those of the Count Carayon-Latour—which are called of the race of Virelade—Viscount de la Besge, and M. de Guipy. The Count de Canteleu has a fine pack of the rough breed in the department of the Eure, in Normandy. Hounds.

The horses in this district are not numerous, only one-third of the number on a similar area in Normandy and Brittany, and they are wholly reared for sale, the farm-work being done by oxen and by young mules. In the northern part they are bred in the fens. Turned out into the half-dried marshes in the spring, the dams and foals lie about in the mud, exposed to the storms and early frosts; the grass is, however, so nourishing that they develop rapidly, and soon put on a good coat. They have a great similarity to the Norman carriage Horses.

Horses

and saddle horses, and, indeed, pass usually into the hands of Norman dealers at one or two years old, when they first taste oats, and take rank among Norman-bred horses without disgracing their adopted country. The best come from the fens of St. Gervais, and their superiority is said to be owing to the introduction, many years ago, of a good sire named "Amadis." So marked, indeed, is their superiority that when the wing of the French army, under General Bourbaki, took refuge in Switzerland with 11,000 horses, some seventy or eighty were purchased by the Swiss authorities for sires, and a resident in Switzerland who had known this horse professes to have recognised without difficulty the type established by him. They have generally good heads, good fore-hands, are well ribbed up, and have an open foot, but their shoulders are too straight, and their chest is apt to be too narrow.

Mules.

The main destination of horses in Poitou is the breeding of mules; out of 90,000 in the three departments, 60,000 are mares, and of these 50,000 are so employed, 40,000 being given directly to Jackass sires, and 10,000 to sires of their own race, to keep up the supply of mares and sires necessary for the trade. Not more than half of the mares put to the Jackass produce foals, and taking into consideration the accidents that happen to those that are born, it may be estimated that 18,000 mules are annually reared and sold in Poitou. Some of them make a high figure, as much as £60 being not uncommon, a considerable number make £40, but £24

may be considered a fair average, at which estimate the large sum of nearly £450,000 is reached, paid to the Poitou breeders annually by outside buyers, for none of the mules of the full age of four years remain in the country; at the end of the season not a mule prepared for the market is unsold. The cost of rearing mules is very small; the dams are poorly fed, and from the time of weaning up to the age at which the young mule pays for his keep, only ten or twelve months elapse; there is no real outlay except for the three months during which he is prepared for market. The mule changes owners every year of his life until he is bought for service; small farmers who do not breed buy the young mules and wean them, selling them again to other farmers who can work them, and they again sell them to dealers whose special business it is to fatten them up for sale. This preparation takes place in a close stable removed from any noise; a stone tank of water provides drink always at the same temperature; abundant and good food is given, air and light are both carefully excluded: neither can penetrate except during the short time the stable is cleaned out daily. Under this treatment the mules soon begin to sweat, and they continue bathed in perspiration: the air is so hot and so charged with vapour that the walls run down with moisture. A few days before the fairs they are taken out and walked for about three-quarters of an hour daily, and they are so changed as to be hardly recognisable. Lean, overworked, dull, when first put up, they are turned out as fat as bullocks, and from being dejected, docile, spiritless animals, they

Mules.

Mules. become bright and cheerful. It is difficult to believe that the dirty forlorn brute that was so recently dragging painfully at the plough can be the same animal, now decorated with a white leather bridle and blinkers, his head reined back to a girdle, holding himself high, pawing the ground, and justifying his owner's bold demand of £40, at least, from the dealers of the south of France or Spain; or if not up to the standard of these exacting buyers, then satisfying the more moderate requirements of the purchasers for the colonies, both French and English, or those from America.

It might be supposed that such a treatment—a change so sudden from semi-starvation to high feeding, and from close stabling to exposure to open air, would be likely to produce disease, but no complaints on this head are ever heard; and what is equally surprising, the animal so full of life and energy on his way to the fair, starting and snorting at every new object on the road, becomes quiet and calm when he joins some thousand or so of his companions, and allows the buyers to pass close to him, to examine his points without a kick from any one of the thousand.

Mares. It is a commonly-received opinion in Poitou that the local race of mares is adapted above all others for the breed of mules, but this opinion does not seem sustainable; and Mr. Sutherland, of Combe, near Croydon, to whom the British public is indebted for being able to see some of the best specimens of the Poitou ass and Poitou mule, has no doubt that a Clydesdale or a Suffolk

mare would produce a mule which would in every point of value "lick all the world." As the owners of Clydesdale and Suffolk mares do not breed mules, being content to produce Clydesdale and Suffolk horses, we shall, until they change, probably have to go to Poitou for the finest animals of this race. Mares.

This local race of horses stands from 15 hands to 15.3, and is heavy and coarse, the joints are large, and the chest broad, neck and shoulders thick, with much hair on the manes and tails, and about the heels. Most probably the breed was brought into the country by the Flemings, who drained the fens in the seventeenth century, and the supposition receives confirmation from the fact that the best sires have been Flemish horses imported recently. There is a considerable mixture of Breton and Percheron blood, and the majority of Poitou mares have these crosses. The watery food of the marshes, and the soft ground, have modified their conformation: their organs of digestion have become larger, and their hoofs have spread. The breeders look much to these peculiarities, and they prefer a mare with a big head, heavy limbs well clothed with hair, and a big stomach, to one of a better form, believing such a one more truly represents the type suitable for mule-breeding, and if she reaches sixteen hands she is considered nearly perfect.

The same qualifications are sought for in the sires, but the birth of a colt-foal is considered a misfortune; it is a filly that is desired, colts being useless in the country, and they are sold and sent away as soon

Mares. as they can be weaned. The marsh-land farmers buy them, keep them during the summer, and resell them to dealers, in whose hands they are prepared for a final sale to those who work them in other parts of France. There is hardly such a thing as a colt a year and a half old on a farm in all Poitou, except those that are kept as sires.

Jackass. But the king of the country is the Jackass sire, for him are reserved all the honours of the breeding, on him are concentrated all the anxieties, the mares of both species being considered of secondary importance. From a strange fancy on the part of the breeders the donkey-mares are kept in a miserably poor condition, such being thought most conducive to the production of colt-foals. For a month before a foal is dropped the mare is never left alone, one of the family is by her side day and night. If a colt comes he is petted by every inhabitant of the farm; the owner never quits him for a month, he guides him to his natural nourishment, feeds him with meal and milk if disposed to lie down, and covers him with a woollen sheet when sleeping. At ten months old he is weaned, and from that moment he never leaves his box until sold. At the age of fifteen or eighteen months he is ready for sale to the keepers of depôts for sires: an operation so serious that it is seldom concluded under twenty-four hours, sometimes double that time is occupied. Frequent examinations of the animals, alternating with copious meals, and still more copious drinks, long discussions as to his qualities and price,

POITOU JACKASS.—SIRE.

do end at last, and when the buyer is satisfied as to the qualities, and the seller agrees to the price, which will run from £120 for a common specimen up to over £300 for a really fine one, the subject of so much discussion is transferred to the possession of his new owner. His noble brow decorated with ribbons and crowned with laurels, he is placed in a cart covered with an awning, and makes his triumphal entry into his new domain, having before him a life which will extend to twenty-five or thirty years, during the whole of which he will not walk as many miles. Kept in a close stable, standing in filth, and never groomed, he becomes really incapable of walking, is attacked by skin affections and by chronic disease of the feet; he does not seem, however, to transmit any of these complaints to his offspring. Jackass.

As may be supposed, the Poitou ass is a very different animal from the English donkey. In height he stands from 13 hands 3 inches to 14 hands 3 inches. His head is enormous, his ears long and broad, generally drooping, and covered with long curly hair, a quality much noticed; the neck is thick, the chest broad, the stomach voluminous, the fore arm long but narrow, the knees very big, as are all the joints, and the legs must have long hair, partly covering the hoof; the haunches are flat, but the hocks as big as those of a heavy cart-horse; the immense bone of the legs is something surprising in an animal whose body is so small, and whose muscular development is so very limited.

There are as many as 160 depôts for donkey-sires in

Jackass. Poitou, but they frequently entail loss upon their proprietors, and are seldom really profitable, especially if it is considered how much personal supervision is required. It may seem surprising that so many should follow an occupation so little advantageous, but these depôts are usually attached to large farms, where also mules are bred, and the possession of a sire of renown gives the owner a consideration in the country which is not without its influence. They have, besides, commonly descended from father to son as a kind of family property, in keeping up which there is a sort of pride.

BERRI AND SOLOGNE.

"SOLOGNE. Poverty and misery pervade the whole; agriculture is at its lowest ebb, and yet everywhere it is capable of being made rich and flourishing.

"Berri. In passing from the "triste" Sologne into this province the soil improves, and with it the products, but continue, however, very moderate, and far inferior to what they ought to be."—ARTHUR YOUNG, 1788.

"No part of France has made greater progress than Sologne since 1815.

"Berri. The use of lime, marl, guano, draining, artificial grasses, improvement in the breeds of cattle, are rapidly extending."
—LEONCE DE LAVERGNE, 1866.

Berri and Sologne.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
Indre	273,966	1,698,822	889,957	202,550	96,807	202,870	22,637	117,118	668,184	72,019
Cher	328,758	1,799,832	968,040	187,160	148,800	305,115	30,262	125,108	554,671	42,789
½ Loir-et-Cher south of the Loire	98,672	744,750	415,277	37,740	114,450	120,685	16,995	49,557	191,776	24,123
⅕th Loiret, south of the Loire ...	42,975	329,782	208,715	12,507	8,087	58,382	7,442	25,952	74,874	7,863
	744,371	4,573,186	2,481,989	439,957	368,144	687,052	77,336	318,435	1,489,505	146,794

	Population.	
	Collected.	Scattered.
Indre	118,257	155,709
Cher	157,797	170,961
½ Loir-et-Cher ...	49,336	49,336
⅕th Loiret	21,487	21,488
	346,877	397,494

	Corn Crops in Acres. Returns of 1876.
Wheat	597,117
Mixed	37,247
Rye	129,432
Barley	141,905
Buckwheat ...	34,592
Oats...	513,075
	1,453,386
Potatoes	59,632

Population per square mile.

Berri and Sologne	115
France...	175

Berri and Sologne	23·67 urban	...	76·33 rural.
France...	31·06 „	...	68·94 „

Decrease of population from 1866 to 1872.

Berri and Sologne 1·29, the same as the average of France.

Proportion of population who can neither read nor write, above six years of age.

Berri and Sologne 46 per cent.
France... ... ... 30·8 „
In Indre and Cher the proportion is 57 per cent.

A vast plain of 4,500,000 acres, sloping gently towards the west, with some hills of moderate elevation filling up the bend of the Loire between Nevers and Blois, containing some of the poorest land in France, if barren mountains be excepted, poor in itself, and its poverty not relieved by any important manufactures, nor by traffic, nor by commerce, forms the old province of Berri, and the district called the Sologne. Including towns and villages, there is not one inhabitant to every six acres, and the taxes per head levied in the district are less than one-sixth of the amount of those paid in the north-west. There is only one town of over 20,000 inhabitants, two exceed 10,000 each, three more average about 8,000, and of the few others sparsely spread about the country none get up to 5,000. The rural population form four-fifths of the whole.

Sologne.

Of these 4,500,000 acres 1,000,000 is the "dull and melancholy" Sologne, between the Loire and the Cher, and composed of portions of the departments of Loiret, Loire-et-Cher, and Cher. The soil is a stiff, unkindly clay, the surface-soil being a thin layer of poor sand, gravel, and flints, wet and sodden all the winter, burnt up in summer. Innumerable ponds and marshes keep the inhabitants—of whom, however, there are only about 80,000 on the whole 1,000,000 acres—in a state of chronic fever. So numerous are these ponds that on the map they seem almost to touch each other; in the portion of Loiret alone there are 800, covering 10,000 acres, and in the district of Romorantin there are 1,000.

In spite of its miserable crops of rye and potatoes, and its wretched inhabitants, this country is not without a certain wild charm. In summer the air is musical with the humming of millions of bees, hives of which are brought from the neighbouring departments to feed on the flowers of the heather and buckwheat; and the ponds are alive with waterfowl—in summer with those that come to breed, and in winter with those that leave their breeding-stations in colder climates.

That Sologne was at one time in a very different state is shown by the existence of many large and noble châteaux, some now in ruin, some in a more perfect condition of repair and furnishing than at any previous date, and by the traces of cultivation where none now exists. Chambord, being the creation of a royal whim, is no proof of local wealth; the same may be said of Chaumont. The former, though unoccupied for more than a century, stands as an evidence of good construction; and the latter, perfectly restored and nobly furnished, has just (1875) been purchased for £60,000, and offered as a wedding gift by a young bride to her fortunate husband, the Prince Amadée de Broglie. But La Ferté St. Aubin, Cheverny, Beauregard, Valençay, princely residences, and many others, may be accepted as proofs that there was once local wealth in a country now so impoverished. Cheverny, built in the stately style of the seventeenth century, and Valençay in the brilliant one of the sixteenth, have few rivals in Europe; royal apartments, guard-rooms, theatre, chapel, are all in as perfect condition as when kings honoured their owners

with a visit. Valençay has twenty-five public reception-rooms; and the surroundings of both are in conformity with their own pretensions; Cheverny is approached by an avenue of ancient trees four miles long, and Valençay is surrounded by its domain of 50,000 acres.

The 17,000 acres of forest at Chambord and Bussy, and the scattered remains of other forests, containing fine trees of oak, beech, and chestnut, give here and there some idea of what the whole country must have been formerly, though the soil can hardly ever have been productive.

The attraction which made this country a favourite residence of the kings and nobles of France down to the reign of Henry IV., was doubtless the abundance of game of all kinds which found a congenial home in the wide forests, the underwood, bushes, meres, and streams. "Sologne," says an old author, "abounded in all kinds of game, and provided every species of hunting."

Berri.

The old province of Berri, now the departments of the Indre and the Cher, was always more fertile and prosperous than Sologne, and not so poorly populated, and a considerable portion of it might, with good cultivation, become as fertile as most other parts of France. Berri is in the very heart of France, the town of St. Amand having been, before recent changes, the geometrical centre of the country. In the time of the English occupation in the fifteenth century the spark of national sovereignty was kept alive here, and Charles VII. was derisively called the King of Bourges, the capital; the wreck of the State of Napoleon found here a momentary

rest after the disasters of 1814; and here are established the artillery depôts since the loss of Metz: they cover 800 acres. Berri retains more of the characteristics of old France than any other province; distinct from the France of Brittany, Flanders, Provence, Burgundy, or Languedoc, and distinct from France as changed by the active life of politics and revolutions.

"Away from those points most traversed by the railways, the towns have retained the calm and peaceful tone, and the inhabitants the manners, language, and accent of the seventeenth century; the country still resembles the immortal portrait drawn by La Fontaine of France, in his time. The shepherd still walks before his flock; the housewife spins from her distaff; the woodman plods home under a canopy of faggots; the horse and the ox now, as then, feed in the half-reclaimed pasture; wild and cultivated nature are still side by side; the heron immovable on the banks of streams; the hare and the frog; the rabbit and the weasel; the fox watching for poultry; and the wolf carrying off the lamb. This world, half desert, half cultivated, which lives and which speaks in the imagination of the fabulist, has lost nothing of its old character. The furtive interview of the wolf and the mastiff might be looked for at the corner of a field or a covert, and in the wind which moans through the woods and breathes through the rushes, it is easy to imagine the oak and the reed holding converse." (*Lavergne.*)

Religious Wars.

The religious wars of the sixteenth century, and those of the Fronde in the seventeenth, ruined Sologne and Berri, as, indeed, they similarly affected other parts of France. Authentic records, the account of rents received for their estates by public institutions, such as hospitals, show that on the cessation of the English wars in the fifteenth century, the value of land rose rapidly, so that in 1550 rents were as high as they were in 1840. The fall was rapid, and the value at its lowest in the early part of the reign of Louis XIV., and the recovery slow, as it was not before 1830 that an important increase was obtained. The original leases of six farms belonging to one hospital are still in existence, and they show that the land, consisting in the whole of 175 acres, let, in 1510, for £72; in 1550, for £104; in 1620, for £28 15s.; in 1720, £37 2s. 6d.; in 1800, £43 4s.; in 1830, £58 8s.; in 1856, £131 4s. At the present moment the value is considerably more than it was in 1856. Further details upon this interesting question may be found in the debates and discussions raised at the time the government of Napoleon III. wished to induce the hospitals to sell their lands and invest the proceeds in public stocks.

The religious wars began in 1562 and ended in 1595, on the accession of Henry IV.; thirty years of almost continual fighting, occasionally stopped from time to time by arrangements between the contending parties, dignified by the names of treaties of peace, seemingly securing, in a more or less satisfactory manner, freedom of worship, but never really doing so. During these

Religious Wars.

thirty years there were eight such accommodations, and at each rupture the passions of both sides showed renewed ferocity.

They were rightly enough called religious wars, as Catholics fought on one side and Protestants on the other, but they were kept alive as much by the rivalry of the two houses of Guise and Bourbon as by the religious sentiment. Berri and Sologne suffered more from them than other parts of France. The family of Coligny had large possessions in Berri; Calvin preached and had many followers at Bourges; Renée, Duchess of Ferrara, who favoured Protestantism, lived at Montargis, so that Protestantism had spread much in the country. It was at Amboise, on the borders, that the Protestant conspiracy, headed by La Renaudie, was crushed, when 1,200 gentlemen of family were hanged, and the executions were witnessed by the king, and took place after dinner, for the "delectation of the ladies." Bourges was sacked and ruined; every town and every castle was besieged and taken, most of them many times, and each time the garrison and the people were massacred. Men had become so used to bloodshed that it seemed to be a positive enjoyment to them to put their fellow-creatures to death with as much torture, and as many of them, as possible; it was the century of assassination. St. Bartholomew was, only on a larger scale, an example of what was done commonly through the country. Castelnau says that during fifteen years of the civil wars more than 1,000,000 people perished, under the pretext of religion and the public good. One captain

tortured to death 770 men, 460 women, and 24 children. The Baron des Adrets, when fighting on the Protestant side, threw his prisoners out of the windows or hung them by their feet. As some clung to the bars he cut the fingers off 200 of them; this was after capitulation. He reserved thirty at Montbrison, and made them throw themselves over a precipice on the top of which he had his table laid. One prisoner made two or three starts, and his heart failed him. Des Adrets asked him how many attempts he meant to make, when the man said, "I'll bet you don't do it in ten times," and saved his life by the remark. Religious Wars.

"Agriculture, formerly better understood in France than in any other kingdom, was abandoned, and towns and villages innumerable sacked, burnt, and pillaged, became deserts, and the poor labourers, driven from their houses, plundered of their goods and cattle, ransomed, and robbed, to-day by those of one religion and party, to-morrow by the other, fled like wild beasts, leaving all they had, and being at the mercy of men who had no pity. The labour of 400 years was destroyed in a day."

But the wars of the Fronde in the early years of the reign of Louis XIV. were the most injurious. They only lasted five years, from 1648 to 1653, but at the end of that period the whole country seemed waste. Towns, formerly populous and wealthy, were burnt and destroyed; their manufactures gone; part of the population living like beasts in the woods. Land, which on The Fronde.

The Fronde.

the accession of Henry II., in 1547, bore crops of wheat, was so impoverished by the middle of the seventeenth century that it could grow but poor crops of rye. Rents fell from 12s. 6d. per acre to 3s. 6d., and had only recovered to 4s. 7d. a hundred years afterwards. In Berri and the adjoining provinces, there were many parishes in which from 1650 to 1653 there were no marriages at all, the births only half the usual number, while the deaths were double, triple, and even five times the ordinary amount. The people were "worn, dry, livid spectres, as pale as death." There were whole parishes in Berri in which bread could not be found in ten houses; villages of two hundred houses "where you could not find bread in two, and such bread as could be found was made largely of walnut-shells; families living for weeks without seeing bread, eating roots and herbs, boiled with some remains of dead animals, often dug up, and putrid. In the fields and under hedges were people covered with vermin, crawling like beasts to seek some nourishment from wild roots; the sick so crowded together that among eight or ten in one bed, only one would be found alive; in one place 800 sick piled almost one upon another. In more than one parish there is a return 'No more inhabitants.'"

In addition to the above short statement of the results of war must be noted the horrors of the wars themselves: armies marching about the country living on the miserable inhabitants, destroying, partly from necessity, partly from mere wantonness, every living thing and every article of food, and the means of

producing it; burning farm-buildings; torturing the inhabitants to discover hidden treasure which generally did not exist; burning villages and towns when an impossible ransom was not forthcoming. Callot's contemporary etchings of "Les Misères de la Guerre" are no mere fancy sketches; they were drawn from actual scenes he witnessed. Many of these armies were composed of foreigners, such as Poles and Germans, and the names of their leaders have become incorporated in the French language as representative of brutal and cruel force. These armies, whether employed by the king or the revolted princes, were seldom paid, and they had but the choice to rob or starve. Many towns were so depopulated that they have not recovered to this day. Issoudun had 700 houses burnt. Michelet well describes this period: "A mortal cold seized every one; no more men, not even any dead—a wide desert." The Fronde.

This terrible description is applicable to a large part of France, but Berri and Sologne seemed to have suffered most, or to have recovered more slowly—not, indeed, even to have recovered yet. It was a great loss to this country when the Court abandoned the banks of the Loire, in the reign of Henry IV.; and the destruction of the forests, sold to meet the expenses of the nobles at the court of Louis XIV., consummated the ruin. In 1700 Berri and Sologne were the most miserable provinces in France: they made no improvement during the eighteenth century; they got worse during the revolutionary period, and have only begun to improve since 1830.

Improvement.

A better future is developing itself. The old attraction of sport is bringing back wealthy residents; old châteaux are restored, new ones have been built. "In the midst of these uncultivated wilds, five or six hours from Paris, the middle ages seem to revive; stags and other large game, which are disappearing everywhere else, are preserved and increase; the sound of the horn and all the rattle of the chase is heard as in the time of Francis I." (*Lavergne.*)

The attraction of wealth to the country by facilities for sporting is good, but its attraction by the prospects of profitable investment in agricultural improvements is better, and much has been done of late years in this direction. Many strangers, tempted by the opportunity of obtaining large tracts of land for little money, have bought estates, which they seem able to do at the rate of about £5 per acre freehold, the upset price at auction sales being frequently £4 10s. per acre, and sometimes the land is not sold when offered at that price. No part of France has received so much attention from authorities of all kinds as Sologne, during the last twenty-five years. A canal has been cut across the country, draining many ponds and marshes, and supplying water for irrigation, and bringing lime and marl to the stiff land. A railroad, which covenants as the price of its concession to bring these fertilisers at a cheap rate, has been constructed. The late emperor purchased a large estate at La Motte Beuvron, of about 8,000 acres, formerly the property of the Dukes de Duras, upon which experimental improvements have been made. The probable

farming value of the soil is judged by the presence of five plants—viz., three kinds of heath—*Erica scoparia, E. vulgaris,* and *E. cinerea;* one kind of furze—the dwarf, *Ulex manus;* and the common broom, *Genista vulgaris.* The land on which the first grows is considered to have staple enough for wheat; that on which the second grows is only really profitable for pasture, but the ease with which it can be broken up often tempts this outlay, which rarely pays; that on which the third kind grows is useless for any purpose whatever. The land growing the dwarf furze, if it also grows the first kind of heath, is the best for bringing under cultivation, as it has some sand mixed with the hard clay; that which grows the broom is the lightest of all, and, working very easily, is cultivated by small freeholders, but the crops grown are never good.

La Brenne.

In one corner of Berri is a large tract of miserable country, 250,000 acres, called La Brenne, or the little Sologne. A stiff, greasy subsoil has induced the system of cultivation by artificial ponds. It is a country of immense, wide, dreary plains, level, but with a slight slope, so that it is easy to construct dams to keep back the water. The ponds are drained and cropped every three or four years. This system renders the locality very unhealthy, and there are but 20,000 inhabitants in the whole district.

Unpromising as may appear the probability of converting such land into a profitable occupation, it has been attempted, and has succeeded. In 1847 M. Crombez, a

Belgian, bought about 20,000 acres, the estate of Lacosme, in the commune of Vendœuvres, about fifteen miles from Châteauroux. "Poor cultivation, miserable inhabitants," said Arthur Young, in 1787, and the saying was true up to thirty years ago. The ponds covered more than one-third of the country; the other two-thirds consisted of land that was practically uncultivated. The commune of Vandœuvres, nearly 25,000 acres, had 1,100 inhabitants. Marsh fevers were prevalent, and the deaths were more than the births. By clearing the watercourses, draining the ponds, and planting, the face of the country has been wholly changed. Thirty-six ponds, covering nearly 4,000 acres, have been brought under cultivation; 12,000 acres are planted, chiefly with oak and fir; 2,500 acres are farmed; beet-root is grown, and a distillery is at work. There is ironstone on the estate, and a foundry has been established, the fuel being supplied by the plantations, and good roads are maintained across the whole district. There are now 2,200 inhabitants, and 390 children attend the schools.

Properties. This is a country of large properties. Nowhere in France are there so many great ones. The largest of all is that of Valençay, which belongs to the heirs of Talleyrand. It consists of 50,000 acres, and covers twenty-seven parishes. At the end of the last century and the beginning of the present one, it was greatly neglected. The magnificent residence, occupied by the king of Spain when removed to France by Napoleon, was very dilapidated. The forests were uncared for, and

the land out of order, almost untilled. Talleyrand entirely renovated the mansion, and it is now one of the finest specimens of a fortified residence, richly decorated. Half the estate is in woods, and the 25,000 acres bring in £8,000 per annum. The farming land is divided into forty-eight farms, of about 500 acres each, and they are carefully farmed; but this apparently magnificent property dwindles much when represented in money value, as the land does not let on an average for so much as 10s. per acre, much of it for only 5s.

Other estates in Berri—such as those belonging to the Duc de Mortemart and the Prince de Chalais—are nearly as large as Valençay. The Duc de Maillé, the Prince d'Arémberg, the Marquis de Vogüe—all of whom take a great personal interest in the management of land—are very large landowners; and there are certainly 100 estates in Berri over 3,000 acres in extent.

Holdings.

As the properties are large, so are the holdings on the open high lands where the soil is very stiff; but they are small in the valleys and by the sides of the rivers. In the former much artificial grass is grown, and there are large flocks of sheep, and the farm-work is generally done by horses; in the latter, the country is certainly far more picturesque, but worse farmed. Oxen drag, in a dawdling fashion, a primitive plough through poor land. Nowhere in Berri is the corn-farming good: an average of two quarters to the acre tells its own tale; but even this is an advance, as much

of the land now growing wheat produced, until recently, only miserable crops of rye.

Planting: Every scheme for the improvement of Sologne has planting for its basis. Half the land ought to be planted; it pays in itself, and leaves the capital and the energies of the farmer to be applied to that part of the land which is best worth farming.

Cheverny. The two examples of estate management here that are the most quoted, are those of the Marquis de Vibraye, at Cour Cheverny, near Blois, and that of M. de Béhague, at Dampierre, near Gien. Cheverny consists of 7,500 acres; 2,000 have been planted, and the rest brought into cultivation by great outlay. It is called, perhaps with some exaggeration, the most colossal work which has been accomplished on French soil in this generation.

Dampierre. Dampierre now consists of 5,000 acres. In 1826, when M. de Béhague purchased the property, there were 2,600 acres divided into seventeen miserable farms, the inhabitants being continually struck down by fever: 450 acres were old woods. More than half the property was so poor that no cultivation paid. The 2,600 acres cost, including expenses of title, £28,000; half of it cost £16 15s. per acre, and the other half only £1 6s. The value of the timber caused the high price of the one half. The rent was £460 per annum, or only about 1½ per cent. on the investment, about 3s. 6d. per acre.

Later purchases have increased the domain to 4,800 acres, at a total cost of £50,000; the rent is £3,200, or nearly 14s. per acre, including the woods and the water —nearly 7½ per cent. on the investment. Lands of adjoining owners are at this moment let in some cases as low as 1s. 8d. per acre!

M. de Béhague commenced boldly with the earliest stage of land improvement; he planted 2,700 acres, chiefly with pines. This planting cost, including the freehold and all expenses, £4 10s. per acre; it now brings in £1 per acre, and the land is improving. There were eighteen large ponds; there are now but three, but they still cover 380 acres; the farms are reduced to three, in all about 1,400 acres; lime-kilns have been built, brick-and-tile-yards established, cottages constructed, and the whole country rendered wholesome; and all with a due regard to profit. There has been no fancy farming; M. de Béhague's book-keeping shows that the undertaking to which he has consecrated his life has resulted in a business-like return for the outlay incurred, as it has assuredly earned for him the respect of his neighbours and the thanks of his country, for showing that judicious improvement can be made profitable.

M. de Béhague has tried the shorthorn stock, but has had to give them up. He works his farm with oxen, for a long time using those of the Limousin breed, but has now decided upon the Charolais as being real good workers, and more readily made fit for the butcher than the Limousin. His sheep are a small breed—a

cross between the Berri and the Southdown; and it is to his sheep that the success of his farming operations is mainly due.

The example set by the Marquis de Vibraye and M. de Béhague has been largely followed throughout this country, both as regards cultivation and the restoration of buildings, if not always upon the same scale, or with the same success, yet with great advantage to the land.

Population. The population is small, only three-quarters of a million on 4,500,000 acres, less than seventy-three to the square mile, and is classed as rather more than three-fourths rural and one-fourth urban; but this urban population is so intimately associated with country occupations that only a small proportion can be considered as really influenced by the conditions of a town life. The decrease shown in the last census as compared with the previous one is 1·29, exactly the average of that of France.

Education. Education is very low; in Indre et Loire, the true Berri, the proportion of those above six years of age who can neither read nor write is 57 per cent:, almost the highest in France.

Green Maize. The great difficulty to be overcome in the hot and dry region of central France has been the obtaining enough food for horned stock. Sheep have always been the mainstay of farming here, and they are largely

sold as store sheep, though a good number are fattened in the country; but cattle have been kept almost solely to do the farming-work. To be made ready for the butcher they had to be sold to farmers whose land was more productive.

The introduction of fertilisers has enabled fodder to be grown, grass lands have improved, and clovers, lucerne, cabbage, tares, and maize cut green have been introduced, but no roots have succeeded; it therefore happened that in wet seasons a farmer would have food enough for 100 head of cattle, and in dry ones not enough for twenty, and in all seasons he would be short of winter food.

A species of giant maize, called Caragua, has lately been introduced, which promises to do for central France what turnips and mangold do for England, and sugar-beet for the north of France. The earlier species of maize, sown in the end of April or beginning of May, easily grows to six feet in height by the middle or end of July; sown once a fortnight it gives a good supply of nourishing green food from May until the end of October; it is greatly liked by all cattle. The caragua, sown from the 10th to the 20th of May, or even later, after the first cutting of rye, is used as green food from August until the frosts come. It grows rapidly, except during the greatest heats, and attains the height of from nine to twelve feet in four or five months; it has reached fifteen feet. Sown in drills about half a yard apart, it can be hoed, and has the effect of a cleansing crop, but the stalks are woody, and must be cut in a Maize.

Maize. chaff-cutter; the crop is, however, very heavy; sown in drills a foot apart the yield is less, but the stalks are more tender, and the land cannot be kept clean. It pays better, probably, to sow thick, as the hand-labour of hoeing is expensive.

A system has lately been introduced, and is becoming general, of storing green maize in pits, sometimes cut fine and mixed with one-fifth of its volume of chaff, sometimes laid out straight without being cut, but in either case well protected from the air and frost by straw, and a layer of sand or earth a foot and a half thick, or, better still, with a covering of boards weighted with stones. It cuts out quite fresh after fermentation, and all stock relish it much, and farmers who have hitherto had no supply of green food in the heat of summer, or during winter, can now put up as much as they want. This maize is very easy to grow; it can be continued for three years consecutively on the same ground, requires very little labour, and one of its warm advocates, M. Goffart, declares that, with its assistance, he keeps from twenty-eight to thirty head of cattle the whole year round off the produce of fifteen acres of such land as would formerly only carry a few sheep. He has had as much as sixty tons per acre. This year (1874) he had forty-eight tons. He fed his stock from the 15th of April to the 15th of June with rye cut green, from the 15th of June to the 1st of September partly on meadows, but chiefly upon rye cut green and preserved in pits; from the 1st of September to the 15th of December upon maize cut green, or preserved, and from the 15th of

December to the 15th of April wholly upon the maize taken from the pits, so that the animals have been fed almost entirely upon the two plants—rye and maize—most suitable to the land and climate of Sologne. At the time of writing (August, 1875) he has 250 tons of maize chopped up and preserved in pits. Each head of stock consumes 120 lbs. daily. The cost of the maize, for cutting in the field, delivery in the pits, chopping by means of a steam-engine of five-horse power, and pressing down, is not more than 10d. and 11d. per ton. A certain quantity of rye-straw is mixed with the maize, more or less, according to the amount of moisture in the maize, but never more than a fifth. Maiz

In 1876 M. Goffart had 17½ acres of maize, from which he cut thirty tons per acre in October, the maize having been sown between the 1st and 15th of July. The machine cuts it in pieces of less than one inch in length at the rate of 1½ cwt. per minute. It pours out like a cascade; three men have hard work to keep the machine fed. The cut maize is carried by a kind of Jacob's ladder to the pit, where it is spread and trodden down by a man and woman. Four one-horse carts bring the maize to the machine, and they make a hundred trips in the day. It takes eight days to clear the lot. Salt to the extent of 2 lbs. to the ton is gradually mixed with it. One ton of this mixture when taken from the pit costs 4s. at the outside. A cow in milk eats 65 lbs. at a meal; the ration, therefore, costs about 1½d. A head of stock eat 12½ tons per annum, which is produced upon half an acre.

Maize. The best crops of maize are from the land which has produced the rye cut green in the spring; the rye is manured in the autumn with twelve tons of farmyard manure per acre, and has a supplementary dressing in the spring of 1 cwt. of superphosphate, and 1½ cwt. of sulphate of ammonia.

The rye gives from six to eight tons per acre; the maize sown after the rye receives no additional manure, and if wheat follows maize the same season no more manure is given to it. When placed in pits some salt is added at the bottom and round the sides, and especially at the top, at the rate of about 6 lbs. of salt to a ton of maize. As the mass sinks, the cracks formed in the covering are trodden down every morning. When the process of fermentation is complete no further sinking takes place, and no more attention is required, nor is there any danger of a second fermentation setting up. Once a week sufficient of the heap is uncovered to last for the week's consumption, care being taken not to give any to the cattle with the frost upon it. The treatment as to feeding varies, of course; some farmers consider it essential that a certain portion of dry food should be given with the fermented maize, and they give about 10 lbs. of hay and 40 lbs. of maize to each head. Count Rœderer kept 130 head of cattle during six weeks, in January and February, 1875, with 100 cubic yards of this preserved maize.

The growth has extended so much, that whereas two years ago five tons of seed met the demand from the farmers, this year (1876) 500 tons have been sold.

For small farmers a hand machine is made, costing £10 10s., which cuts 40 tons of green maize and 10 tons of straw mixed, in three days, with four men, who work the handle by turns. They do more than 1½ tons per hour.

This system of storing forage in pits is extending to green food that comes early, which is then available during the summer, when all pastures are burnt up. Trifolium alone, or mixed with rye, is cut at the end of May or early in June, packed immediately very close in pits. It is piled up a yard and a half above the ground, and in the course of a single day sinks a yard, and at the end of three or four days is on a level with the soil. A layer of straw is placed round the mass, to absorb the condensation of the moisture, and the cracks formed by the sinking are kept filled up. When no more green food is to be had the pits are opened, usually early in August. The straw is found to be in a state of complete putrefaction. A thin layer of about half an inch of the trifolium is quite white: this is removed, and under it is the mass which has undergone fermentation. The colour of the stalk is a greenish yellow, the leaves are perfect, and have retained their green colour; the flower, which was red at the time of pitting, turns violet, and there is a strong odour of alcohol. All cattle like it much. Trifolium is most suitable to be used in this way, as it comes early, produces largely, and does not make good dry fodder. This season (1875), when the weather was so bad for getting in the hay, the trifolium

Trifolium.

Trifolium. from the pits is much better than the clovers stacked in the usual manner. The diminution in volume is considerable, one-fifth of fermented food only being cut out from the green quantity put in. A more perfect system of pressure would, it is thought, reduce this loss to three-fourths, and this more perfect system of pressure

BERRI SHEEP, WITH PROBABLY A LEICESTER CROSS.

is obtained by the use of brick pits and heavy weights on the top of the mass.

Sheep. The glory of Berri for ages past has been its sheep. From the time of the Romans up to that of the adoption of the merino, Berri produced a large part of the wool of France. The arms of Bourges, the capital—azure, three rams argent, with a shepherd and shepherdess as supporters—bear witness to the pride with which the

inhabitants regarded their chief production. Berri still Sheep.
sends 200,000 sheep yearly to the Paris market, and in numbers nearly equals the rich departments of Aisne and Oise, but falls far below these in the size and value of the animals; all the country, indeed, north of the Loire can bear heavier sheep than Berri, but none can

BERRICHON-CREVANT SHEEP.

rear them so cheaply. In Berri improvement has made but slow progress: most of the farmers abide by the native race, crossed in increasing numbers by Southdowns, Kents, or Leicesters, while a smaller number have a cross of merinos; whereas in the north the breeding-flocks are crossed or pure merinos. There will probably be no absolute substitution of one breed for another in Berri, but the old breed, in its present imperfection, is doomed to extinction, and the factor will probably be the Southdown. As long as wool was

Sheep. the principal object sought in the growth of sheep, merinos had almost exclusive favour, but now that meat has risen so much in value, and wool has fallen, the tendency is to seek early maturity, and this is found best in the Southdown, with which the native sheep seem to have some affinity. Arthur Young noticed this, and says it is of great consequence to have a breed not too large, and well clothed with a short firm fleece, rather than larger and more expensive breeds. Feeding has as much to do with improvement in sheep as the selection of race, and it is of no use trying to get larger sheep until the land can produce abundantly what will support them. Where the land is poor, and nourishing plants are rare, as in Berri and Sologne, large-framed sheep would starve. There the native breed, acknowledged to produce good wool and excellent-flavoured meat, is the most profitable, to be improved by crossing with Southdown. These small sheep can be reared, at a very light expense, until they are a year or eighteen months old, upon sheep-runs hired at a small cost by breeders who cannot fatten them, but sell them to farmers in the north, who make a trade of fattening stock, but never breed, and who like the cross of the Southdown-Berrichon, because it costs but little money, fattens easily, and meets with a prompt sale. If fattened at home these sheep can be sent to market at ten to eleven months old, giving fifty to sixty lbs. of clean dead meat. M. de Béhague sends thirty to forty to market at a time at this age, which give sixty lbs. of dead meat, from a cross with a Berri ewe and a South-

down ram. His sheep, however, are above the average : Sheep.
the ordinary weight is from forty-five to fifty lbs. of dead meat, and the price from 9d. to 10d. per lb., the offal paying the expenses. The mutton from the Berri

CHARMOISE.

sheep makes as good a price as any in the Paris market; and "Gigot rôti de mouton de M. de Béhague" figures proudly in the *menu* of the *table d'hôte* at the Hôtel du Louvre, and elsewhere.

On the borders of the Sologne, but north of the Loire, is the establishment of M. Nouette Delorme, one of the largest and most successful breeders of Southdowns in France. From this flock drafts are

Sheep. made frequently, which go to improve the local breed; and within the limits of Sologne, at La Charmoise, M. Malingié has crossed the native sheep with the Kent and has succeeded in producing a sheep honoured in the shows as a distinct breed, and called La Charmoise. It is a most successful cross, but still only a cross, animals in the same pen showing some distinctly the Kent type, and others the Solognot; they are, however, right good sheep, and are much used through the country.

Cattle. Sologne and Berri have very few cattle, and those few are not good; but they are as good as the land will support. They are very similar to the Parthenay and Limousin breed, and do most of the work of the farm. They are bad milkers, giving only about 250 quarts in the year, while good cows, in a good district, will give four times as much. They do very well upon the food they get, whereas better stock would starve. They give milk enough to rear their own calves. By adding cake or meal, a much better result could be obtained, but it would not pay. Milk sells badly, and the gross produce of each cow is not reckoned at more than £8 per annum, without including the value of the manure. Until recently a little straw and some inferior hay was all that the stock could have during the winter, but the improvement in cultivation already noticed is giving a supply of clover, lucerne, and sainfoin. These, with maize preserved for winter food, permit some of the more enterprising farmers to use cattle in larger num-

bers. and of more kindly habits. The brindled and red and white coats of the shorthorn cows from Anjou and Maine are not unfrequently seen among the uniform reds of the local breed. Six years ago such animals would have found no buyers in the country, but they are now sought for. It is, however, very doubtful if the food resources of the country are yet equal to the requirements of this more exacting breed. Cattle.

These remarks do not apply to that small portion of Berri which joins the departments of Nièvre and Allier, because the stock there is chiefly the grand Charolais race, and the pastures equal those of these two departments, producing cattle which defy competition from any district in Sologne, or in the other parts of Berri.

Horses are few, and have not for many generations been bred here to any extent, though formerly the breed must have had some reputation, as Henry IV. sent some Berri horses as a present to Queen Elizabeth, which were supposed to be better than any that could be found in England at that time. They were small, hardy, and vigorous: the race has disappeared. A large establishment has recently been started at La Baude, in Cher, for the breeding of draft-horses. It began in 1874 with eleven sires of the type of the Norfolk trotters, and a dozen brood mares; it is now on a larger scale. Horses.

Honey is largely cultivated in Sologne, where there are fully 20,000 hives, bringing in about £12,000 without any cost. The chief seat of the honey-farming is at Honey.

Nouan le Fuzilier, where each cottager has at least five or six hives, some as many as 100. Owners of hives in the neighbouring departments bring them here for the season when the heather is in flower, paying a rent of half a franc for each hive; 1,500 to 2,000 are thus brought annually.

MARCHE—LIMOUSIN.

"MARCHE. Much sandy land that produces rye only, and the crops exceedingly poor. I saw much that will not yield more than a quarter per acre.

"Limousin. Rye produces four times the seed, but no trifling quantity is sown that hardly yields more than the seed, by reason of poverty and bad management.

"In regard to general beauty of a country I prefer Limousin to every other province of France; its beauty does not depend upon any particular feature, but the result of many. Hill, dale, wood, enclosures, streams, lakes, and scattered farms, are mingled into a thousand delicious landscapes, which set off everywhere this province." —ARTHUR YOUNG, 1789.

"The peasants continue the old system of farming. Rye still produces only four or five times the seed. Round Limoges all modern improvements are introduced, and the proverbial barrenness of the country retires before them, but this influence penetrates only a short distance, and away from Limoges the old poverty is paramount."—LEONCE DE LAVERGNE, 1866.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.	Asses.
Creuse	272,975	1,392,075	658,847	399,775	132,107	87,000	5,229	168,168	808,064	64,819	4,923
Haute Vienne.	317,790	1,379,145	739,960	293,992	23,137	104,420	7,430	160,694	650,804	110,223	4,659
Corrèze	300,563	1,466,520	545,467	376,945	300,750	125,357	6,360	131,662	591,293	120,068	11,003
	891,328	4,237,740	1,944,274	1,070,712	455,994	316,777	19,019	460,524	2,050,161	295,110	20,585

	Population.	
	Collected.	Scattered.
Creuse	89,327	183,648
Haute Vienne.	103,189	214,601
Corrèze	83,628	216,935
	276,144	615,184

	Corn Crops in Acres. Returns, 1876.
Wheat... ...	154,875
Mixed	7,500
Rye	508,970
Barley	7,565
Buckwheat...	150,412
Oats	64,287
	893,609
Potatoes ...	114,737

Population per Square Mile.

Marche and Limousin 136
France 175

Marche and Limousin 16·24 urban ... 83·76 rural.
France ... ... 31·06 „ ... 68·94 „

Decrease of Population between 1866 and 1872.

Marche and Limousin 1·24 per cent.
France ... ... 1·29 „

Proportion of Population who can neither read nor write, above six years old.

Marche and Limousin 54·7 per cent.
France ... ... 30·8 „

In Haute Vienne 61 out of every 100 people above the age of six years can neither read nor write: this is the highest proportion in France.

Marche, the border country between the possessions of the French kings and those of the English, when the latter owned Aquitaine, is more wild and picturesque than the border country of England and Scotland; but no French Scott has yet risen to make the dry bones of its past romantic history live. There surely must be such a history in a country which was the home of Xantrailles, who took our Talbot prisoner at the battle of Patay, releasing him without a ransom, and receiving the same mark of courtesy when he himself was captured shortly afterwards; and of La Hire, who fought with such savage brutality by the side of Joan of Arc, and who got his nickname from the roar as of a mastiff with which he charged the English, and who alone of all the French leaders tried to rescue the Maid from her captors. The Montgomerys, Lusignans, Armagnacs, Mortemarts, and Bourbons all held possessions in Marche; it sheltered Charlotte d'Albret, the cruelly-used wife of Cæsar Borgia; was the native country of the Great Master of the Knights of Rhodes, Peter d'Aubusson, who held that island against Mahomet II. and 100,000 Turks, and who kept prisoner in his castle of Bourganeuf for seven years—from 1482 to 1489—Zizim, the brother of Bajazet. The grande-mademoiselle daughter of the Duke of Orleans, and the richest heiress in Europe, was exiled to her estates in Marche; and there are still remains of her magnificent dwelling. Under the Château de Peyreire, the old residence of the Armagnacs, lies now buried a treasure of £2,000,000 sterling in gold, to be

found only by the one who is pure in heart and soul; to discover which a company was formed not so long ago, but which was unsuccessful, as it was certain to be from the first, companies having neither heart nor soul, and the desire to get the money doing away with any purity of intention. It was just outside Marche, but in Limousin, that the finding of a similar treasure cost our Richard I. his life. "The Viscount of Limoges had found a great buried treasure—a golden emperor and all his court, sitting at a golden table. The king demanded his share—the lion's share; the viscount gave, but not all; so the king besieged his castles, and before one of them—Chalus Chabrol—received his death-wound." (*Stubb's "Early Plantagenets."*)

A country which has such a castle as Crozant, built on a rocky promontory, two of whose sides, measuring each 1,000 paces, are bounded by a torrent, and the third by a ravine—a castle which could hold a garrison of 10,000 men, and of which George Sand says: "One hardly knows which has been boldest, or more tragically inspired, on this spot—nature or man. Such a place seems necessarily connected with scenes of implacable contest, eternal desolation, and yet the history of a stronghold so important in the wars of the Middle Ages is almost unknown;" as Boussac, with its noble guard-room, the fireplace of which is fifteen feet wide and fifteen feet high; where also was the noble Abbey of Grandmont, besides many other castles and abbeys—must have some romantic history; and yet no one seems to know anything about it. There are, besides,

an unusual number of Druidical monuments, and of the largest size; and earthworks and mounds, marking the sites of towns of a date before the Roman conquests; and remains also of Roman stations.

In spite of the connection of Marche with so many noble names, it has no separate history as Brittany, or Burgundy, or Normandy has; and though castles and abbeys testify to the presence of those who usually called the lands around them their own, it seems always to have been a kind of "no-man's-land." The people appear to have settled down upon it much as squatters would, and to this day it retains the evidence of such irregular occupation. The villages consist of little groups of ten or twelve houses, occupied by perhaps fifty people, nearly all bearing the same name, each family owning a small estate of from ten to fifteen acres, but the group using from 100 to 300 acres in common for pasturage. There are hundreds of these village communities. One-sixth of the whole land in Creuse—250,000 acres—is held in common; 750,000 acres are owned by small proprietors, none having more than twenty acres at the outside, most from ten to twelve; less than 400,000 acres are in the hands of proprietors who let on the métayer system, in farms of from fifty to sixty acres. Out of the 273,000 inhabitants—which at four to a family would make less than 63,000 households—there are more than 75,000 freeholders, including those who own house-property. This seems a perfect system of an equal division of property, and should bring perfect happiness and

comfort, but it does not; and because the results are directly contrary, there being more poverty and worse farming here than anywhere else in France, this department is pointed out as an evidence of the failure of an equal division of land. Such a deduction is an unfair one, because it has been the custom for many generations (it was noticed in the seventeenth century as having then long been common) for the mass of the adult population to leave the country every year to work as masons, stonecutters, bricklayers, &c.; and these emigrants do not spend more than three months out of each year at home, and those three months are in the winter, when but little work can be done. It is true they bring back with them the money they have saved, amounting probably to £200,000, but the country loses by their absence; and so important is the drain that nearly 34,000 men leave every season out of a male population, between the ages of eighteen and fifty-five, of less than 64,000. It may be said that almost every able-bodied working-man, not an inhabitant of a town, leaves the country for the time that he would be most useful at home, and the work on the land has to be done by the women, the infirm, and the aged. To make matters worse, many of the emigrants, and the best of them, do not come back at all; and though the population returns of the department of La Creuse show a trifling increase since the last census, the increase is owing to the opening of the mines in the coal district of Ahun. This annual exodus was no doubt caused originally by the land not producing enough to support

the inhabitants, and the land still remains poor; too poor for the extreme division that takes place; and for its extensive use in common. But rich land could not be well farmed whose best hands left it every season at the time it most wanted attending to.

Marche is a granite country of an average elevation of 1,000 to 1,200 feet above the level of the sea; the highest parts do not rise into peaks, but are undulating plains, or slightly rounded hills so little broken that it is not easy to realise the fact of their being 3,000 feet high. It is a country of many springs, the head waters of the rivers Vienne, Creuse, Indre, and Cher, and their feeders, all eventually finding their way into the Loire. These springs form rapid streams or torrents, which run in deep ravines. The principal river, La Creuse, probably owes its name to the hollow "Creux" through which it runs, the cliffs of its valley or gorge being generally from 300 to 1,200 feet high, and well wooded. The small towns or villages are many of them built as if at the bottom of a funnel, and the winds may be blowing keenly on the bleak uncultivated plains above when hardly a breath will refresh the valley below. The description of Chambon by George Sand is applicable to most places in Marche:—"The country is lovely; the little town is very well placed. It is reached by a slope in the mountains, or rather by a cleft in a pretty deep ravine, for properly speaking, mountain there is none. Leaving the great plains above where the land is poor and wet, covered with stunted trees and large bushes, the descent is by

a long winding defile occasionally opening out into a valley. At the bottom of this gorge, which often branches off into others, are streams as bright as crystal, not navigable, torrents rather than rivers, though they only slip away rapidly, murmuring a little, but threatening no one. "It is a country of grass and leaves, a continual cradle of verdure, of bright meadows carpeted with flowers."

The climate is cold and wet; snow covers the higher levels sometimes for many months in the year. The rainfall averages from twenty to thirty-two inches, according to locality: in some parts it reaches thirty-six inches. This rainfall comes mostly in the spring, the late summer months being hot, and the autumn fine, when the waters of the streams are much reduced.

Population

For a country without towns Marche is well populated, having 138 inhabitants to the square mile; it stands in this respect sixty-third among the departments of France, but there are very many others only just a little more or a little less populous. The inhabitants are classed at 90½ per cent. rural, and 9½ urban; 89,000 as living collected, and 184,000 as scattered. But the urban population can have very few of the characteristics of dwellers in cities, seeing that the two largest towns only average 6,000 each, and there is but one other that approaches 4,000. As a set-off to this the rural have all the points of the least advanced dwellers within reach of civilisation. "The groups of cottages that form the small villages, little republics, half

hidden among the blossoms of the cherry-trees, or the deep shade of the chesnuts, look like such dwellings as would have existed during the age of gold; such as are put on the stage. A near approach destroys the illusion. The roads are deep in mire and hardly passable; the mouldy thatched roofs touch each other, the walls are low and foul, the beds are crowded together in rooms without light or ventilation; the cattle live with their owners, and the dung-heap obstructs every access; the furniture and the utensils are of the most primitive kind, and the clothing of the people is made from wool and hemp, home-grown, home-spun, and home-made.". (*Leonce de Lavergne.*)

The food is of the lowest: bread from buckwheat and rye, and a kind of porridge or paste made from chesnuts, form the staple of the nourishment of the people, with the addition of potatoes; though these would seem to be considered as only to be eaten should they not be wanted for the pigs, if the remark put by a romance writer who knows the country well into the mouth of one of his characters is any way near the truth: "I get potatoes if any can be spared from the pigs. Why should I have them? it would be of no use fattening me up, they could not sell me.".

Education.

The standard of education is low: more than forty-six out of every hundred inhabitants over six years old can neither read nor write; and this official evidence of ignorance is not compensated by any extra natural

intelligence in the people, or by any instances of superior education in any portion of them.

Farming. Farming is very backward, and the system apparently has not changed for ages. There is hardly a wheel-plough in the whole country—the work is done by the same sort of instrument as was in use when the Druidical monuments were built. Over most of the land no wheat is grown, only buckwheat and rye, each of which gives a minimum yield, the result comparing very unfavourably with the produce of the same grains in Brittany; but turnips are grown, and the soil and climate are both suitable for this root, which would be very productive if properly cultivated. Railways now bringing in lime and marl, and enabling produce to find good markets, are beginning to alter the farming. Artificial grasses and roots are increasing. One-third of the land is in permanent pasture, a larger proportion than in any other department, except in the adjoining one of Haute Vienne; and there are some water meadows, but not nearly so many as there should be. The numerous streams to be found all over the country are not utilised; in the wet season they overflow and do mischief, and when the water would be serviceable there is none to be had. But the full use of natural advantages cannot be obtained in a country where so much of the land is occupied in common, and practically wasted.

Sheep. The Marche farmer depends for his money returns upon the produce of his sheep principally; they are

reared without cost upon the rough open pastures round each village; and in winter, when they must be under cover while the ground is covered with snow or deluged with rain, they are barely kept alive by rations of dried fern, or heath, or bad hay. Under this treatment many hundreds die yearly, and those that survive give a worse return both of wool—an average of four lbs. only—and meat than any sheep in France: they are the smallest in the country and the lowest in price. At the census in 1862 they were valued at only nine francs, less than half the value of the average: through the rest of France there has been a great advance since 1862, partly because meat is dearer, but largely because the sheep are better. Marche has improved but little, and the quality is so poor that it has not felt the full advantage of the advance in price from the first reason. The sort of animal is by no means a bad one; diminished in size by living in a bleak cold country, and by being badly treated, it greatly and rapidly improves when moved to better quarters; and the Marchais breed is a favourite and profitable one with sheep-farmers across the centre of France, from the mountains of Auvergne to the hills of La Vendée. Sheep.

Quicker communications and higher prices are beginning to tell even here. Two hundred rams of the better sort of the Berri breed are now bought where one hundred were bought formerly; but the best Marchais sheep do not weigh more than from 60 to 70 lbs. without their wool.

Cattle. The cattle are in the north the same breed essentially as the Parthenais; in the south, the Limousin. None of the oxen are kept for labour, they are all sold away, either when quite young as calves, or when older and fit for work: the farming-work at home is all done by cows, which help to feed the family with their milk, or bring in some money from dairy produce; and when past the age at which they are profitable, they are put up to fatten as best they may; but as it is seldom they are so put up until they are ten years old, the result is not very satisfactory.

Pigs. There is a large production of pigs in Marche, the soil particularly suits the growth of potatoes, upon which they are fed, and now that there are means of conveyance by railway which permit of their reaching distant markets without being driven on foot, the sorts that are put on fat at the expense of their capacity for locomotion are increasing.

Export of Animals. Upon the whole, the export of animals of all kinds will now reach as much as £400,000 yearly, and is increasing.

Limousin. "The beauty of the country is so various, and in every respect so striking and interesting, that I shall attempt no particular description, but observe in general, that I am much in doubt whether there be anything comparable to it either in England or Ireland. It is not that a fine view breaks now and then upon the eye

PIGS EATING ACORNS.

to compensate the traveller for the dulness of a much longer district, but a quick succession of landscapes, many of which would be rendered famous in England by the resort of travellers to view them. The country is all hill or valley; the hills are very high, and would be called with us mountains, if waste and covered with heath; but being cultivated to the very tops, their magnitude is lessened to the eye. Their forms are various; they swell in beautiful semi-globes; they project in abrupt masses, which enclose deep glens; they expand into amphitheatres of cultivation that rise in gradation to the eye, in some places tossed into a thousand inequalities of surface; in others, the eye reposes on scenes of the softest verdure. Add to this the rich robe in which Nature's bounteous hand has dressed the slopes with hanging woods of chesnut, and whether the vales open their verdant bosoms, and admit the sun to illumine the rivers in their comparative repose; or whether they be closed in deep glens, that afford a passage with difficulty to the water rolling over their rocky beds, and dazzling the eye with the lustre of cascades, in every case the features are interesting and characteristic of the scenery. Some views of singular beauty riveted us to the spots. That of the town of Uzerche, covering a conical hill, rising in the hollow of an amphitheatre of wood, and surrounded at its feet by a noble river, is unique. The water scenes from the town itself, and immediately after passing it, are delicious. The immense view from the descent to Donzenach is equally magnificent. Pass

another artificial lake between cultivated hills; beyond are wilder heights, but mixed with pleasant vales; still another lake more beautiful than the former, with a fine accompaniment of wood; across a mountain of chesnut copse, which commands a scene of a character different from any I have viewed either in France or England, a great range of hill and dale all covered with forest, and bounded by distant mountains. Not a vestige of any human residence: no village, no house or hut, no smoke to raise the idea of a peopled country; an American scene, wild enough for the tomahawk of the savage."

Such was Limousin as it appeared to Arthur Young in 1788, and to the traveller on the same road it has not seemingly altered since then. The small increase of population has not been sufficient to remove that character of solitude which was so striking to him, that increase being wholly in the towns. The higher slopes of the hills, or mountains, as he says they should be called, have been somewhat cleared of their forests, but the noble groves of chesnuts remain untouched. 350,000 acres in Limousin are covered with chesnuts, forming part of that belt of a million and a quarter acres that extends across the southern part of the centre of France, without taking any account of solitary trees. Nothing in sylvan scenery can be more bewitching than the sight of the play of sunlight through these forest groves, lit up with the sparkling streams and small lakes. Limousin has been called the Scotland of France. It has the granite peaks, the mountains, the streams, and the

waterfalls, but the lakes are small and artificial, being large ponds kept back by embankments. It has the trout, and in some rivers the salmon, but it has not the grouse. It has the mountain and the flood, but hardly the brown heath, and certainly the woods are not shaggy: they are such specimens of timber as Scotland cannot show.

It is significant that in his comparison of Limousin with his own country, Young omits the name of Scotland; but at the time he wrote Scotland was no more known to strangers than Limousin is now. French writers are frequently asserting that shoals of travellers leave their own country yearly to visit scenes of beauty which are inferior to what they have at home, and that if only Limousin were out of France, Frenchmen would crowd to see it. The rivers rush through deep clefts in the mountains; and, strangely enough, there is hardly one which has a high-road running down its valley. The grandest of them all, the Dordogne, in the sixty miles of its course through Limousin, from the basaltic cliffs of Bort, 2,500 feet high, where it enters the province, to its exit, has hardly a dozen miles of high-road on its banks. The coach-roads run north and south, and they cross these rivers, giving travellers a passing glance at their beauties; but no railway direct from Paris to any part enters the country, and thousands of English on their way to Italy or the Pyrenees pass within a few miles of some of the finest scenery on the Continent without any conception of its beauty.

Climate. The climate is irregular, cold and wet on the higher levels. The true southern climate of France really begins when the rivers Corrèze and Dordogne are crossed. In some parts the rainfall exceeds thirty-six inches yearly, and all through the province it is above the average of France. This central plateau of France, of which Limousin forms a most important part, marks the division of the climate of the country. To the north of it the temperature ranges from 50° to 55°, to the south from 55° to 60°, but this difference of 5° does not indicate sufficiently the difference that exists. On the north there is, in the main, equality of moisture and of weather, frequency but not intensity of rain; on the south, excessive heats and drought, and at periods storms of a violence unknown in the north, and devastating floods, so that the countries which are the most parched by drought are also those in which the most rain falls. The attention of the administration is now drawn to the danger of allowing this state of things to continue, and the waters of the Rhone and the Garonne will ere long be made use of to fertilise the country by irrigation, instead of devastating it by floods.

Farming. Limousin is a grass country. Of its 2,000,000 acres very little more than one-third is arable, and of that third nearly a half is under root-crops, more than a quarter is grass, and more than another quarter waste, chiefly, however, rough pasture. On some farms of one hundred acres, fifty will be grass and twenty others in root-crops. Irrigation is very generally prac-

tised; the springs and rivulets are diverted, but not on any general system, each farm irrigating on its own account during the winter and spring; and as there is no arrangement for an outfall, the water accumulates and forms marshes, which are most unhealthy, and breed fevers. Farming.

The métayer system, so successful in countries where the land is rich, as in Anjou, is prevalent here, to the hindrance of the advance that the country ought to make. The agreement between the landowner and the farmer is verbal, and the tenancy open to be cancelled in any year, though it rarely is cancelled. This uncertainty makes the farmer hoard his savings instead of putting them in the land, and the landowners, who really are partners with the farmers, take their share of the profits and give no care to improvements; indeed, the attempts when made are not encouraging. One large landowner, M. Tesserenc de Bort, now (1877) Minister of Agriculture, offered to pay for half the lime his tenants could use with advantage, but the offer remained a dead letter. "The farmers and farming are wretched," said M. de Lavergne, in 1860. Some improvement has taken place since then, stimulated very much by the wealth brought into the country by the porcelain manufacture; the business men taking much interest in the improvement of their estates. The farmers bestow their chief care on their cattle, and in this they are right. Limousin is not a corn-growing country. The area under corn is diminishing, that under grass is increasing.

Improvement, however, does progress. Cattle is the

Farming. main dependence of the Limousin farmer, and cattle cannot be sent to market to make the best price unless well fed, and good food cannot be got without better produce, which again cannot be grown under the old system. So lime and phosphates are bought, artificial grasses are more grown, and altogether Limousin farming is following in the wake of other farming in France. Mowing and reaping machines, even, are by no means rare now, and the thrashing is done by steam, by people who travel the country with machines.

All this is done very cautiously; the Limousin farmer will run no risk; he must put by money at the year's end, and he does; every one buys some government stock out of his yearly saving.

The impulsion, indeed, does not come from the farmer, the "métayer," but from the landowner, and its effect can be illustrated by the result upon one property, that of Mons. Nadaud.

On one of his farms, consisting of 37 acres, of which 10 are vineyard, and only $2\frac{1}{2}$ acres grass, the head of stock weighs nearly $5\frac{1}{2}$ tons, and is worth £270; on another of 45 acres, of which five are vineyard, the family was formerly in misery, but has during the last ten years lived comfortably, and bought £400 worth of freehold land; on one of 50 acres there are eight large bullocks, 25 sheep, and an indefinite number of pigs; the value of the stock on December 31st, 1876, was nearly £300, and weighed nearly $7\frac{1}{2}$ tons. On all Mons. Nadaud's farms the tenants have money to invest every year, and the change is owing to the abandonment

of corn-growing, and the substitution for it of the rearing of stock. Farming.

The estate was bought in 1850; it consists of about 200 acres, and cost £3,000. At the time of purchase it brought in £72 per annum, raised with difficulty and irregularly paid. £2,000 have been expended in improvements, and the income to the landlord in 1876 was £480, paid cheerfully, and leaving a comfortable surplus to the farmers. (*Mons. de la Trehonnais in the "Journal d'Agriculture."*)

The hundredth part of the farinaceous food of France is derived from chesnuts, mainly grown in Limousin, Auvergne, and Perigord. Chesnuts contain more nourishment than an equal weight of potatoes, and the flour keeps well. An acre, fully planted, would contain seventy full-grown trees, though few acres have that number. The yield of seventy trees would support a man for fourteen months; but chesnuts are not good food taken alone: with rye-bread and milk they form the chief nourishment of the people in this country. They are not unwholesome, but the populations that use them so freely are not vigorous. They are cooked by being first skinned and then put into a large boiler, with a little salt and a small quantity of water; they are covered in closely and steamed: too much water would make them lose their flavour and nourishing qualities. When done they are squeezed into a kind of paste and dried, or are eaten hot in a kind of porridge. In 1876 the department of the Dordogne, adjoining Chesnuts.

Limousin, exported over £50,000 worth of chesnuts and £140,000 worth of walnuts.

Population. In point of the number of inhabitants, Limousin compares favourably with the rest of rural France; it is 133 to the square mile. The earthenware manufacture, which is carried on in the Haute Vienne, necessarily collects workers together, and Limoges, the chief seat of the trade, contains over 55,000 inhabitants; St. Yriex, where the clay-pits are situated, has a population of 7,000; Tulle, which for a long period has been the seat of a manufacture of firearms, has 14,000 inhabitants; and Brives, dealing in local agricultural produce, notably in truffles and in mustard, has 11,000. After these the towns drop down to the level of large villages, none exceeding about 4,000. Eighty per cent. of the population are rural, and one-third returned as living collected together. Deducting the agglomeration in the towns, two-thirds of the population live a life as solitary as that of the Bretons, and, from the situation of the country, as much cut off from active communication with the world as they are. The highways of travel from Paris, the centre, to Italy one way, to Spain the other, have left Limousin untouched by the civilisation that follows traffic. The active life of the valley of the Loire, and that of the rich countries of the south, from Bordeaux, by Toulouse and Avignon, to Marseilles, were unfelt through the central granite district of Limousin. The great highways of the Rhone, the Garonne, and the Loire, attracted, and have received

from the earliest times to the present, the best that France had to offer of social and political interest. The unattractive table-lands of Limousin—unattractive in the sense of the absence of the power of producing what men most covet—were from a remote period the refuge of people driven from the fertile plains; and the inhabitants are now clearly distinct from those of the countries that join them on either side.

"This country has been fixed upon as the cradle of Celtic nationality in France, and there are some who believe that here the old Gaulish blood kept itself purer from external admixture than was the case anywhere else in the land." (Morley, *Fortnightly Review*, May, 1877.)

In the eyes of those who gauge worth by size, Limousin is unfavourably distinguished, this province being the last in the list of all the departments of France for the number of men rejected for service in the army from being below the standard. In Haute Vienne nearly 175 out of every 1,000 were so rejected; and in Corrèze nearly 168, the standard being five feet four inches. The feeblest tribes in the early days of conquest would take refuge in the poor mountainous districts of the Limousin; and a diet of chestnuts instead of corn, and of pork in place of beef and mutton, during successive generations, would not tend to develop a stature originally deficient.

Education is low. Haute Vienne comes last of all the eighty-seven departments, with more than 61 per Education.

cent. of its inhabitants above six years of age who can neither read nor write. Corrèze is eighty-first, with 55 per cent. But Limousin has (1876) the honour of providing France with her agricultural minister. M. Tesserenc de Bort is a Limousin. In his attention to the general wants of the country at large he certainly will not overlook the claims of his native province, and in this he will be well supported by his son, who is the author of one of the most useful manuals of elementary agricultural education, drawn up for the use of the commune in which his father's estate is situated, but applicable generally to the whole of Limousin.

Sheep. The breed of sheep is the same as that in Marche; there is the same over-abundance of quantity, and the same rough treatment. In number Marche and Limousin count more sheep on the same area than any other part of France, but we have seen how inferior they are in size. They rarely leave the country fat; but are very useful as store sheep in those countries where the land is better and food more plentiful, and they are a steady source of income to the breeders at the smallest possible outlay of money.

Cattle. The basis of profitable farming in Limousin is the rearing of cattle. The cows are kept for all the home labour; the young bullocks are sold when fifteen or eighteen months old, or even younger, untrained. They are largely used on the fertile plains and light lands of the Charentes,

where their labour and manure are supposed to pay for their keep; and when well trained they readily find buyers at a good profit on cost prices. These buyers take them northwards, and sell them for heavy farm-work on the stiffer soils of Berri, and through the country, right up into Flanders: here the end of their career approaches, as they are fatted off on beet-pulp when the sugar-making and beet-planting season is over, and they may be seen by scores at the market of La Villette in Paris, towering over most of their competitors, bearing upon their shoulders evidences of the solid work they have done. "These oxen are of a beautiful form; their backs straight and flat, with a fine springing rib; clean throat and leg; felt well; and are in every respect superior to many breeds we have in England. We met a great many droves of these oxen, and they were with few exceptions very fat; and, considering the season, May, the most difficult of the year, they were fatter than oxen commonly seen in England in the spring. I handled many scores of them, and found them an excellent breed, and very well fattened." Since Young's time the cattle have greatly improved in England, and the Limousin are probably no better now than they were then. Attempts have been made to increase the size by a cross with a more southern race, the Agenaise, but it has only been successful where the pastures and general feeding are exceptionally rich; elsewhere the result has produced an increase of bone, a thickening of the hide, and a general falling-off from the good qualities of the pure breed. The cross with the Cattle.

Cattle. shorthorn has given, as usual, an animal more early fit for the butcher, such a one as takes the prizes in the fat-stock shows; but they are not Limousins, nor is it possible to rear them where the Limousins are reared, or to get them to do the work the Limousins do; what progress has been made has been by selecting the best sires. With the exception of the males necessary for breeding none are kept in the country. The farm-work is done by cows. This breed gives but little milk—enough to aid materially in the nourishment of the household, and to rear the calves, but nothing more. Although the main business of cattle-breeding in Limousin is that of raising young stock, and selling it as soon as buyers can be found for it, fatting for market is not wholly neglected, and about 6,000 beasts are sent up to Paris yearly from this country.

Horses. Limousin had in former times a very fine breed of saddle-horses, and when the French gentry rode and hunted a great deal more than they have done during the last three or four generations, the Limousin horses made high prices. The breed was dying out more than a hundred years ago; and the introduction of the Arab and English horse at the Pompadour stud in 1763 helped to extinguish it, for extinguished it is said to be completely. There is hardly even a tradition left of what it was like. It still existed to some extent in 1787, as Arthur Young says, "This province is reckoned to breed the best light horses that are in the kingdom, and some capital regiments of light horse are always mounted

from hence; they are noted for their motion and hardiness. Owing to the introduction of the Arabs the breed of this province, which was almost spoiled, has been much recovered." It would seem from this that the true breed did not exist in Young's time, but a good cross of it with the Arab, retaining that character for which the original breed was most noted, easiness of motion. The whole of the stock was probably used up during the Napoleonic wars, and if any remains of it are to be found it will be among the herds of horses that exist in a half-wild state in some parts of this country. At present they are greatly neglected—left to shift for themselves in the open wastes and forests. They remain out-of-doors as long as the snow is not too thick for them to get some meagre food by scratching it away. The lasso is often used to capture them, and when taken up they are put upon scant rations of straw. On some domains there are mares twenty years old which have never carried a saddle or had a scrap of harness upon them. To get at them they must be stalked like deer. These wild horses fall off greatly in condition in January and February; by May and June they pick up flesh; in July and August, during the heats and drought, they often go several days without drinking; in November they are in fair condition, feeding upon acorns. These horses have a fine coat, very little mane, and the mane, as well as the coat, is soft and silky. Their legs are sinewy, and without rough hair; their head is clean, the crest light, their hoofs good, their hams broad and well developed, tendons and muscles well brought out, and

Horses.

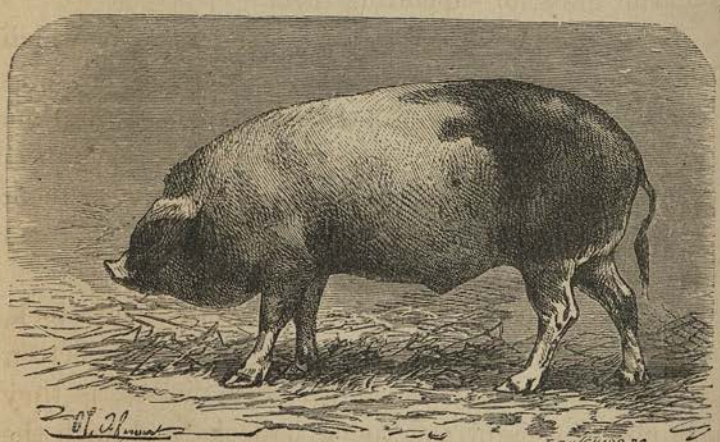
Horses. very powerful; they are very hardy, and have every point of a useful army horse except height. Care and breeding and better food will, it is hoped and expected, give them another hand in height, and the *haras* of Pompadour is near enough to them to give them a useful cross with the Arab and English thoroughbred. There is the same tradition here as elsewhere in the west of France, that the breed is descended from the Arab horses of the Saracen army defeated by Charles Martel in the eighth century, and with every probability of truth, for the wilds of Limousin are sufficiently near the scene of the battle for the horses to have escaped there, and the country would then, as now, be one providing abundant grass for supporting them.

It is quite probable that the saddle-horses for which Canada is famous may be descended from this breed, as the French emigrants took horses with them at the time that the Limousin was the best saddle-horse in France. The Canadian horses are much liked, and 15,000 of them are bought for the United States yearly, for light harness and saddle work.

As the breeders take more pains with their stock, landowners in the lower country, where the soil is better, are beginning to buy young Limousin horses, as they have always bought the young bullocks, and with the better food the horses improve as the bullocks do.

Pigs. The breed of pigs is wholly unimproved, and perhaps suits the country fully as well as if the blood of more easily fattening animals were introduced, as they would

be more dainty in the matter of food. Long-legged, narrow-backed, hollow in the belly, they are very hardy; they cost but little for the first fifteen or eighteen months of their lives, and as soon as they have a good mess of potatoes, bran, and chestnuts put before them they fatten rapidly and grow heavy. They sell well for bacon and such purposes much used in the south, but are not adapted for the manufacture of those delicate preparations of pork which are largely consumed in Paris and in the north; the smallest farmer in the Limousin will take to the fairs seven to ten great pigs, worth from £8 to £9 each. Pigs.



PERIGORD RACE.

BOURBONNAIS AND NIVERNAIS.

"ONE of the finest provinces in France. The finest climate, perhaps, in Europe; a beautiful and a healthy country.

"The Bourbonnais and Nivernais form one vast plain, through which the Loire and the Allier pass. The predominant soil in much the greater part is gravel, I believe, commonly on a calcareous bottom, but at considerable depths. Some tracts are sandy, which are better than the gravels, and others are very good friable sandy loams. The whole, in its present cultivation, must be reckoned amongst the most unproductive provinces in the kingdom, but capable of as great improvement, by a different management, as any district in France."—ARTHUR YOUNG, 1789.

Bourbonnais and Nivernais.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
Allier	386,071	1,827,090	1,080,782	192,570	148,710	197,757	10,826	200,267	355,520	97,798
Nièvre	335,751	1,704,140	870,200	215,400	11,017	535,015	19,393	169,076	226,395	70,998
	721,822	3,531,230	1,950,982	407,970	159,727	732,772	30,219	369,343	581,915	168,796

	Population.	
	Collected.	Scattered.
Allier	188,399	197,672
Nièvre	154,157	181,594
	342,556	379,266

	Corn Crops in Acres. Returns, 1876.
Wheat	403,645
Mixed	4,000
Rye	160,052
Barley	108,322
Buckwheat ...	24,230
Oats...	270,205
	970,454
Potatoes	97,382

Population per square mile.

Bourbonnais and Nivernais 132
France 175

Bourbonnais and Nivernais 21·49 urban ... 78·51 rural.
France ... ... 31·06 „ ... 68·94 „

Increase of Population from 1866 to 1872.

Allier ... ... 3·68 per cent.
Nièvre ... ... 0·98 „
France decreased 1·29 per cent.

The provinces of Bourbonnais and Nivernais, both with greater natural capacity for improvement than Berri or Sologne (except that part of Berri which joins Nivernais and resembles it) are not so far ahead of their poorer neighbours as they should be, but they are making progress, and they ought soon to take the rank in tillage-farming which they already hold in cattle-rearing, and which the natural fertility of the soil would enable them easily to reach.

Nivernais is hilly, and the land sticky, and difficult to farm. Bourbonnais is far before it in the nature of its soil, but it is not before it in its farming; it is more in the hands of métayers, and they are below the average of this class in France.

Bourbonnais has 200,000 acres of wheat, and 114,000 of rye. The proportion of rye is too great; the land would bear wheat very generally, and it is almost a national disgrace that so much good land should be subjected to so poor a cultivation. There is some progress in the right direction, as the returns of 1862 showed 250,000 of rye. It is not very clear what has become of the 134,000 acres diverted from rye, as wheat has not increased, nor barley; and oats have decreased. Only 55,000 acres are accounted for in the returns, artificial grasses and root-crops showing that increase. One-third of the arable land is now (1873), as in 1862, under bare fallow, which is a great deal too much.

Nivernais has 200,000 acres of wheat to 46,000 of rye—a not unreasonable proportion, as much of the land in the Morvan range of mountains is too cold and

wet to suit wheat. Wheat, according to the returns of 1876, shows in much the same quantities as in 1862. Barley has increased 10,000 acres, and oats 40,000, while rye has decreased about 5,000 acres. Artificial grasses have increased 17,000 acres, about 20 per cent.; and roots are now 14,000 acres, from being less than 4,000 in 1862; and bare fallow has fallen from 285,000 acres to 225,000. This shows a general improvement all round. The yield per acre has increased: it now averages nearly twenty bushels per acre; it was seventeen in 1862, and not much over ten in the beginning of the century.

Soil. And this is the land which Arthur Young calls "the pleasant plains of the Bourbonnais, perhaps the most eligible country of all France, or even of all Europe, as far as soil and climate are concerned;" and again, "I shall in general observe upon this gravelly district, that it is one of the most improvable I have ever seen." He calls it a most tempting place for an Englishman to settle in, "the land being good enough to produce four times as much as it was producing under the then system of management." This is as true now as it was in 1789; and it may be supposed that Young would not now resist the temptation of buying an estate here, to which he then almost yielded, deterred only by the dread of buying a share of coming troubles.

The estate over the offer of which he lingered so long, and to the consideration of which he recurred so frequently, consists of 3,000 acres. The price was

£12,000, which included a handsome residence with its furniture, two mills, the timber, stock, and implements. It was sold during the stormy times of the Revolution for £8,000, and again in 1826, for £12,000 and in 1866 would probably be valued at £24,000, which is still only £8 per acre; and the custom continues of including the furniture, stock, and implements in the purchase-money. The opening of ample railway communication, and the advance in all farming stock since 1866, will have greatly increased its value, and at this moment (1876), at £8 per acre, nothing but sandy and stony land could be got. Allowing for the increase in value, land in Bourbonnais is obtainable at a lower price than land of a similar quality elsewhere in France. The properties, though not so large as in the poor districts of central France, are not small; and as the métayer system gives the working farmer an interest in the land, without compelling him to purchase, he is not so greedy to obtain land at any price as in other parts of the country. There are only two departments in which there are more métayers. The savings of the farmers in Bourbonnais (for savings on a French farm there always are) take a different direction to those of other parts of France, and money is placed out in shares and bonds of railways. In the year 1866 the revenue-collectors in Allier bought on account of small capitalists £60,000 worth of Government stock; and it is estimated that three times that amount passed through the hands of bankers the same year. In the Nièvre £180,000 were invested in various stocks in one year. This oppor-

tunity of good investments diminishes the amount of money obtainable on mortgage, and the small landowner wishing to increase his estate finds it less easy to borrow than he did. In 1845, in Allier, £120,000 was advanced on mortgage; in 1866 the amount did not reach the half.

Two instances of what may be done with such land may be given: One that of M. de Tracy, who succeeded to an estate of 7,500 acres in Bourbonnais about thirty years ago, when he took it into his own management. One of the farms, which was let in 1847 at £30 per annum, brought in, ten years afterwards, £600 net, twenty times the old income, with an outlay of £720 only in money. The other, that of the estate of La Salle, which was bought in 1861 by M. Leon Riant for £29,000. Further capital to the extent of £6,000 was advanced at various dates; and when a valuation had to be made, in 1872, for a division of the property among three brothers, it amounted to more than £68,000. The main cause of the increased value was the creation of water meadows. These are exceptional cases, though examples very similar could be found, not only here, but in many other parts of France.

Success in these examples and the general improvement of land throughout the country is owing to the increased means of obtaining lime and other fertilisers by the construction of railways, and to the application of theoretical knowledge of the properties of manures and soils, a knowledge far more extensively acquired in France than in England, and the success has been in

many cases attained by men who have had no practical knowledge of farming until they had taken possession of the land.

The successful competitor for the prize for good cultivation in the department of the Nièvre in 1877, M. Farjas, exhibited his implements at the show at Moulins. They consisted of a complete set of everything wanted for farming on a large scale: traction-engine of Aveling and Porter, steam plough, steam threshing-machine, Crosskill's rollers, Smyth's drills, Howard's harrows, mowers, Hornsby's reapers, were all there. It was stated that in the department of the Allier alone there are now 362 portable steam-engines employed in agricultural work.

The Morvan.

The south-western half of the department of the Nièvre is occupied by the granitic range of the Morvan, which also covers parts of the departments of Yonne, Côte d'Or, and Saône et Loire, extending over a tract of country fifty miles long by thirty at its greatest width. Fifty years ago it was not traversed by a single high road, nor indeed by any road in good repair; there were no bridges, only some trees roughly squared thrown across the streams. It is still about the wildest district of France, covered with immense forests, full of bright streams and foaming waterfalls, totally unsuited to agriculture, and uncultivated, with the exception of some small patches of soil on the banks of the streams. The inhabitants are as poor and wild as the country, living on rye and potatoes, coarsely clad, shod with wooden shoes

The Morvan.

at twopence the pair, and living in filthy huts side by side with their animals. In the winter they are woodmen, busy in the forests preparing timber for floating down the streams to supply fuel for Paris, or staves for the wine-growers in Burgundy, or charcoal for the furnaces at Fourchambault. In summer they do carters' work with their marvellously-strong little bullocks, a pair of which will draw commonly a load of over a ton and a half of ore, or timber, or staves, or ironwork, or charcoal. They are fit for little else, as they are extremely difficult to fatten.

Up to 1830, the whole, or nearly the whole, of this work was done by these little Morvan oxen, and none could equal them in the strength, courage, and dexterity requisite for this work; none had the hardness of hoof essential for traversing the rough tracks, often of bare granite rock, which then were the only means of communication between the forests and the navigable rivers; or could live on the poor food the country supplied. Since this date good roads have been made across the Morvan to all the points to which the produce has to be delivered; consequently, the draught-oxen can be of a race which, while drawing heavier weights, can be readily got into condition for the butcher; the Charolais is, therefore, rapidly displacing the Morvan breed.

The opening of communications, not only by these good roads, but also by the canal and the railway, and the improved power of floating timber by heading back the waters of the streams, have enabled owners to cut

down forests, and have brought a large expenditure of money into the poverty-stricken district.

Mineral Springs.

Bourbonnais derives great wealth from its mineral springs, which are more numerous and more frequented than any others in France. Vichy alone has nearly 30,000 visitors (26,000 in 1874, and there were more in 1875 and 1876) during the four months of the season; who, if each remains a month, and spends an average of a pound a day—which they will do, as the patients are from the most wealthy classes of Europe—must cause a local circulation of not far short of £1,000,000 sterling. Cultivation round Vichy is much stimulated by this expenditure, and the land, divided into infinitely small portions, produces largely.

Population.

Allier is one of the few departments of France which shows an increase of population in the census of 1872 over that of 1866, and it shows a larger increase—3·68 per cent.—than that of any other, except the Nord, which shows 3·90. The increase is owing to the development of the coal-fields of Montluçon and Commentry; the agricultural population has really diminished. The departments next in rank for increase are the Loire, 2·12, and Pas de Calais, 1·34; the increase in both being referable to the same cause, the opening of coal-mines—those of the Loire, at St. Etienne, and those of the Pas de Calais, on the frontier of the Nord. This increase acts upon its neighbour Nièvre, which increases also, though only 0·98 per cent.

Population. This, however, places it favourably in comparison with France in general.

Three-fourths of the population are returned as rural, and one-fourth urban, but half live collected together; and it may be assumed that the occupations of all the three-fourths are not really rural in the same acceptation of the word as if they lived in Brittany or Normandy. Working in coal-mines or at the iron-furnaces can hardly be called rural occupations, and the inhabitants are not returned as urban because they do not live in towns. There are two towns in Bourbonnais of over 20,000 inhabitants—viz., Moulins and Montluçon—and one of over 10,000, Commentry; these two latter are in the centre of the coal district. Nivernais has only one town over 20,000, the capital, Nevers, with 22,000. Three towns in the two provinces average less than 6,000; the others are no bigger than villages.

The population is small per square mile, being only 132, against 175 for all France; but this is owing to the large tract of forest in the Morvan, which is almost uninhabited, and covers nearly a fourth of the total area. Allowing for this, the cultivated country is well peopled.

Education. Education is low; close upon half the inhabitants over six years old—49·9 per cent.—can neither read nor write.

Cattle. One breed of cattle is found almost exclusively in Nivernais and Bourbonnais, that from the country of

Charolais in the adjoining province of Burgundy. They are noble-looking animals, always white or a pale buff colour, excellent workers, strong, hardy, and robust; they fatten well on the open pastures after doing such work as is, perhaps, not exceeded by that obtained from any other race. Cattle.

The breeders in the locality from which this race has sprung, and particularly in that part of it called the Brionnais, which possesses the most perfect type, are especially careful to admit no cross; it remains the same now as it has done for generations, with all its qualities and all its faults. At the shows at Charolles the prizes are withheld from any animal with the slightest trace of any other breed. The cattle business of this country is that of fatting stock on pastures. In the Brionnais natural pastures occupy four-fifths of the surface, and the land lets at from 50s. to £5 an acre; it will fatten a bullock upon an acre during the summer. Stall-feeding is not generally practised, and during the winter the stock lose much. They are taken up at the end of the summer in very good condition, and turned out again in the spring lean and poor. The country does not supply nearly enough stock to furnish the pastures, and from 10,000 to 15,000 head are purchased every spring in the neighbouring districts, particularly in Auvergne; these are generally sold during the summer in which they are bought. Not more than from 1,500 to 2,000 are properly stall-fed through the winter, as stall-feeding is not found profitable, and is done chiefly for the sake of the manure: the real profit

Cattle.

made is from the grass-fed beasts. Although the breeders in Charolais are so stringent in their rules about admitting no cross, the same men, when buying store stock for fatting, admit the advantage that some shorthorn blood may give, and they buy more readily

NIVERNAIS OX.

the stock that has some of this cross than that which keeps more strictly to the old breed. The buyers of working-bullocks even are content now to have a little shorthorn blood, for they find that the money result is better, even if they get oxen that can do less hard rough work, as by less pressure of work the condition is better kept up, and when put on grass, or in the stall, flesh is laid on more rapidly.

It is in Nivernais that the finest specimens of this breed of cattle are to be found; indeed the improvement made has justified the adoption of the name as that of a distinct breed, called the Nivernais-Charolais. Three varieties seem to be acknowledged, as entries are made at the shows at Nevers of Charolais, of Nivernais, and of Nivernais-Charolais. An outsider could not see in what the difference consisted, and it may be that it only exists in the fancy of the breeder, as they all compete in the class for Nivernais-Charolais. It is significant, however, of the difference in race, that the competitors for fat stock prizes are all Nivernais-Charolais, and those in teams are all Charolais. Cattle.

Charolais cattle were introduced into Nivernais about a hundred years ago by a farmer from the district of Brionnais, who brought with him all his stock, and succeeded so well that many of his neighbours successfully followed his example. These men settled on the most suitable spots for laying down permanent grass, and they may be said to have created the system of water-meadows in the country; they have brought under grass cultivation an immense extent of land which had been almost unproductive. The farm of Aunay, when taken in hand by M. Antoine Matthieu, a son of the first immigrant, fatted sixteen head of stock: it now sends upwards of 300 head to the Paris market yearly. Another farm, owned by a hospital, of the extent of 750 acres, was let up to 1864 at £364 per annum: M. Paillart now pays £1,440 for it.

The improvement was for a long time confined to

Cattle. care in the selection of sires from the same race. It is only recently that any infusion of shorthorn blood has been admitted; it is even now admitted in a very slight degree and with great care, to avoid the cross showing itself in a marked manner. The shorthorns for sires are chosen of a pure white colour, and as much as possible from those breeds in which the white colour descends from parent to child. The increased value of meat induces the breeders to look more to the meat-producing properties of their stock than they did, and at the annual show at Nevers the well-bred Nivernais bulls sell readily: there are usually about 140 young bulls exhibited. The race is displacing all others in the surrounding districts as fast as the improved produce of keep allows, and this show has become the regular market for the sale of young sires.

In his account of the show at Moulins, 1877, M. de la Trehonnais notices a remarkable instance of perseverance on the part of a shorthorn breeder in Bourbonnais. "M. Colcombet, living in a district where the Charolais breed prevails, set to work to get up a herd of white shorthorns. He started by buying the whole of the twenty-two volumes of the English Herd Book and every volume of the French, and with a patience worthy of a Benedictine monk, he traced back from generation to generation the accidents of colour in each family. With the knowledge thus laboriously acquired he was able to select his stock with such certainty that the most perfect success has rewarded his toil. He is now somewhere about his fortieth calf, each perfectly white,

without a single hair of red or roan appearing in any of them to upset his calculations or betray his hopes. A Booth bull, 'Silver Cloud,' has been a great helper in this undertaking. This exigence of colour has interfered sometimes with quality in the selection of dams, but now that M. Colcombet may feel assured of having absolutely fixed the colour in his herd, he will be more at liberty to turn his attention to perfection of form. The stock of 'Silver Cloud' are remarkable for great quality." Cattle.

The breed is only successful where the farm produce is sufficient to enable the animals to be well fed at all seasons; and as evidence of its capabilities, M. de Béhague gives the following result of the fattening of four Nivernais oxen bred by him:—

	Weight at birth.	Age at sale.	Weight at sale.	Increase per month.
No. 1	66 lbs.	31 months	1,478 lbs.	47¾ lbs.
„ 2	70 „	36 „	1,987 „	55⅕ „
„ 3	68 „	37 „	1,893 „	51⅙ „
„ 4	64 „	40 „	2,079 „	52 „

These animals were treated from their birth as being intended for the butcher, and they were never worked at all; the value of their work was lost. They were fed in covered yards in summer, upon lucerne, clover, and green maize; in winter in stalls, upon hay, mangold, cabbage, and rutabagas. No. 1 was sold when just fat enough for the butcher, the others were pushed on to the extreme weight they were likely to reach.

At the fat-stock shows at Paris, where no qualities but those that tend to the production of meat are con-

Cattle. sidered, the Charolais blood is very triumphant. In 1874 the first prize was obtained by a cross of the Charolais with a shorthorn; the fourth by a pure Charolais; and the Nivernais carried off more honours than any other race—viz., third prize, three supplementary prizes, one highly commended, and two commended, and also the first prize for a lot of four. In 1875 the superiority was still more marked. The first prize was a Nivernais ox five years old, weighing 2,412 lbs., and the same animal took the prize as the best beast in the show; a cow four years old, weighing 1,640 lbs., took the first prize among the French breeds, and another one that for the best cow in the show: both of these were of very fine quality; the bullock was somewhat coarse. In 1876 the prize for the best ox in the show went to a shorthorn-Charolais, thirty-four months old, weighing 2,006 lbs., and the prize for the best lot of four beasts was taken by some white Charolais from thirty-three to thirty-seven months old, weighing an average of 1,771 lbs. each.

The heaviest beast at the London show in 1876 was a cross, Scotch and shorthorn, 2,774 lbs., at four years old. The first prize shorthorn weighed 2,320 lbs., at thirty-eight months.

It is certainly a triumph for any native French breed when it carries off prizes at a fat-stock show against shorthorns, because good form and fatting properties are the only qualities considered there, and while the shorthorns have no recommendation but these, the Nivernais are also right good workers.

At the Nevers show in February, 1877, there were 147 young bulls under one year exhibited by forty-seven different breeders, all a pure white, and putting out about a dozen, all very level in quality: their skins were supple, the hair silky, and the general handling good. It was considered the best show that has yet been held. This quantity supposes a larger quantity, three or four times as large, of heifers belonging to the same herds, and does not nearly represent the wealth of the country in such young stock, for none came but those within an easy reach of a railway station; nor did those who sent send all they had, and some might be kept back on account of the high amount of the entry money, 16s. for each head, to be paid at the time of making the entry, and no money returned in case of absence, though the president declared that he believed if the fee were doubled the entries would not decrease. At the same show the first prize for animals of any breed under three years old went to a shorthorn, six days under the age, which weighed 2,016 lbs., but for those under four years it went to a Charolais, aged three years and ten months, weighing 2,116 lbs., which also took the cup for the best beast in the show, and a first prize in the following week at Paris, but hardly deserved its position in either case: it was overloaded with fat badly placed. The second prize of Nevers was a much better animal, but not forward enough. This cup animal belonged to M. Bellard, who must have a fine herd, as he took the first prize also in the class limited to Nivernais-Charolais with an ox of four years and two months old, weighing

Cattle.

Cattle. 2,096 lbs.; the second being aged four years and ten months, and weighing 2,315 lbs.; and also the first prize for a team of four oxen, each aged six years, the lightest weighing 1,992 lbs., the heaviest 2,445. In 1876 at Paris the cup went to a cross, shorthorn-Charolais; but in 1877 a beautiful shorthorn distanced everything else: its weight was 2,120 lbs., and it was thirty-six months old. Some glory, however, shone upon the Nièvre, as it belonged to one of the leading Nivernais breeders, M. Tiersonnier, the owner of the animal placed second to the cup animal at Nevers.

The Nivernais cows are perhaps more perfect than the oxen: the first prize at Nevers was also the first prize at Paris. She was nearly ten years old, and about as good as a cow could be: she had bred regularly, and fatted up to a fine level beast.

M. de la Trehonnais, in his report on the Paris show, 1877, speaks thus of the Nivernais breed. "The most striking part of the show was, in my opinion, the marked improvement evident in the Nivernais cattle. It is whispered that this is owing to an infusion of shorthorn blood. I know nothing as to this, but I say with pleasure that I have never seen such an assemblage of fine Nivernais cattle as those which formed, undoubtedly, one of the chief ornaments of the show. It is, however, in lots that the Charolais race shines out best; it should be seen in a herd, and I know of no country sight so attractive as that of a large herd of Charolais cattle grazing under the foliage of noble trees, their white coats standing out against the rich back-

CHAROLAIS DRAUGHT OX.

ground of verdure. Examined separately, the Charolais, even the best of them, are less admirable; they have the serious faults inherent in the breed, faults which are not yet wholly corrected. Their shoulders are too prominent, their backs too narrow, their sides too flat, their loins and haunches insufficiently developed, their heads are heavy, their horns too big, and, in general, they want 'quality.' We must not despair of seeing all these faults corrected: much progress has already been made." This judgment is from a meat-producing point of view. The Charolais are workers before they go to the shambles, and the prominent shoulders and heavy fore hand may be an advantage in working-oxen. Cattle.

The same severe and friendly critic, all the more friendly because severe, says of the show at Moulins, in Bourbonnais, in May, 1877, "On one side were seven yearling shorthorn bulls, and on the other eighteen Charolais, whose coats of a brilliant white glistened in the sun like satin. This lot of young Charolais was the glory of the show. The young shorthorns suffered dreadfully by the contrast, with the exception of two. It was painful to see them. The shorthorns under two years were a much better lot, and among the heifers there were some worthy of competing in any show in England; but, from some reason or other, climate, or too frequent crossing, the shorthorns, though they keep their form, seem to me to want that size which strikes one so much in looking at the stock of the best herds in England. Recourse ought to be had, I think, more

Cattle. frequently to the best specimens of the pure blood of Bates or Booth."

These cattle-show triumphs do not tempt the ordinary farmers to employ directly the shorthorn as a cross. They say the constitution of the Charolais is weakened by too much aiming at early maturity. The cows do not bear so well, or for so many years, and miscarry more frequently. The shorthorn blood is, however, introduced through the Nivernais sires, and a greater breadth of meat is obtained; but it would be a great mistake to look for as valuable an animal as a worker in the improved as in the old breed. Partly owing to this improvement, but greatly to the care bestowed upon the animals, which are now better fed, worked less severely, and put up to fatten younger than formerly, Nivernais now sends as many as 20,000 head of fat stock yearly to Paris. Bourbonnais approaches this: the farmers holding their lands under lease, prefer devoting their energies and their capital to rearing stock, rather than to the improvement of their land, which would, perhaps, not be more immediately profitable, and might lead to an increase in the rent.

As the land is getting better cultivated, cattle are being bred for the butcher only, without reference to work, to some extent, and the shorthorn is used with increasing freedom. At the sale of the government herd at Corbon, on the 19th May, 1877, out of ten shorthorn bulls sold, five went to the Bourbonnais.

The business of grazing in Nivernais has been greatly assisted by the action of the Bank of France, the director

of the Nevers branch, M. Giraud, having alone of all the directors of the various branches of the bank through France discounted the paper of the breeders and graziers. During the six years, 1869—1875, he has advanced over £2,600,000 on such bills, without a single one having been dishonoured at maturity. Cattle.

While the final object of cattle is that they should be eaten, and while the preparing them for the butcher is so important a business, the immediate use of the Charolais ox is that he should work. The country of Nivernais is very hilly, and the soil is sticky, so that road and field labour are very difficult. Upwards of 11,000 bullocks are employed delivering fuel and ore at the great iron-works of Forchambault. Two-thirds of these are Charolais, and they will travel twelve to twenty miles a day, a pair dragging a two-wheeled cart, with a load of a ton and a half, sometimes with as much as two tons and a half, being fed only with from 8 to 10 lbs. of hay, and passing the night in meadows where there is often very little for them to eat. At from four to six years of age, after this rough treatment and hard work, they are prepared for the butcher on the natural pastures, not always of a very rich nature; in four or five months they are in condition for market, with no more nourishment than they obtain in the open fields, root and meal feeding not being generally practised in Nivernais. The use of working-oxen is so great in this country that it is quite usual to see 2,500 pair on sale at one time at the fairs of Autun and Château Chinon. They are much bought for the north, where they are used in working

Cattle. the land for the cultivation of beet-root, and when the work is done they are fatted off on the pulp.

With this great power of working, only equalled by the breed of Limousin and Salers, and possessing far greater qualities for the butcher than these, it is easy to understand that the breeders should hesitate about making use of any cross which would tend to diminish the value of their stock for that purpose for which they are primarily required.

As regards the quality of the beef, the general opinion is in favour of the superiority of the Charolais over the shorthorn, or that the cross will produce, in the first generation, meat of a superior quality to that of either of the breeds separately. This improvement by a cross is acknowledged in the case of all the other French breeds, but it is insisted that any cross gives better meat than the shorthorn pure.

Sheep. Though Nivernais and Bourbonnais have not so thoroughly adopted sheep-rearing as, according to Arthur Young's judgment, they should do, the former province takes the lead in producing sheep that are used through the centre of France to cross with the local breeds. The Comte de Bouillé's flock of Southdowns at Villars, near Nevers, is as good as any flock in England, now that that of Jonas Webb is dispersed. M. Signoret, M. Noblet, and M. Tiersonnier have some of the best Leicesters that can be got from England. M. Signoret bought the prize Leicester at the show at Hull in 1873, at the price of £120, from Mr. Turner, of Thorpeland,

Northampton. Another flock of Southdowns, that of M. Nouette Delorme, at Ouzouer les Champs, in Loiret, north of the Loire, equals that of M. de. Bouillé in quality (they seem to take prizes alternately at the shows), but is not quite as large. The extended use of rams from these flocks must be telling upon the character of French sheep, as they let or sell freely; but it is of comparatively recent date, and began with the Paris Exhibition of 1855, at which a pen of Jonas Webb's attracted great attention. The word Southdown was in everybody's mouth, the reality was wanted there also, and soon Southdowns were to be seen in all the sheep-breeding districts. Want of care, and want of judgment, caused disappointments to be very general; but M. de Bouillé came over to England several times to study the characteristics of the breed, and to seek advice from Jonas Webb, who told him that the Southdowns were so hardy that they would stand anything, "even French management." M. de Bouillé began in 1855 with fifteen ewes in lamb, which cost him, delivered on his estate, more than £16 each. These he attended to himself, as he did not care to entrust the experiment to a shepherd who would probably be prejudiced in favour of his own system, and it was essential to learn under what conditions it would be necessary to have these sheep reared in France. The first year passed over favourably, and in 1856 and 1857 a further purchase was made of a fine ram and fifty-five ewes, and the flock has flourished ever since. Sheep.

As it would be impossible for the sheep to be out of

Cattle. doors continually in the Nièvre, on account of the danger from wolves, M. de Bouillé keeps his sheep in enclosed yards, with covered sheds round them, and they are led out to pasture every day; they are fed on green food, cake, bruised oats, hay, and mangold. Under this careful management they do not degenerate, though there seems a very general opinion that Southdowns, or indeed any of our breeds, whether of sheep or cattle, do degenerate, either from the effects of French management, or from those of the climate. The sheep at M. de Bouillé's are weighed on the first of each month. They weigh 11 pounds at birth: the rams weigh 150 pounds at a year old, and 225 pounds at two years old; the ewes weigh 121 pounds at a year old, and 150 pounds at two years old. Put up to fat as soon as weaned, the sheep weigh 95 pounds at six months old; 123 pounds at nine months, and 154 pounds at a year old. The fleeces of the males at twelve months old averaged 11 pounds. The flock now consists of 700 head; about 60 rams and 100 ewes are sold yearly; the annual loss from death averages 3 per cent. A hundred and twelve gold medals, besides many silver ones, and ten silver cups, testify to the success of M. de Bouillé at the shows.

Cultivation. This improvement in the quality of both the cattle and sheep, which is very general and important, proves that there is a corresponding improvement in the herbage or roots grown to feed them with. In Nièvre, grass land, artificial and natural, has increased from

177,000 acres in 1840 to over 300,000 at the present time; and in Bourbonnais from 140,000 to nearly 200,000. The railways have brought manures, and taken away the produce of the farm at good prices; fallows have diminished; waste lands have been brought into cultivation; beetroot sugar-works have been established; artificial and water meadows have been formed; and the energy noted in the great steps made in the growth of cattle and sheep must be understood as penetrating every part of the farm, and not as being confined to the feeding-box and the sheep-fold.

Horses.

The number of horses in the district is small, all the farming-work being done by bullocks; but endeavours are being made to improve the breed. The Société d'Agriculture of the department buys about four fine horses for sires yearly, and sells them on the day of the cattle-show at Nevers, on condition that they shall remain in the department for six years, and not serve any mares except those belonging to breeders in the department. These sires cost the Société about £160 each, and there is usually a loss of half the money on the sale. The sort chosen hitherto has been the black Percheron usually; and it is hoped that the Nivernais will become as celebrated for its breed of black horses as it is for that of its white cattle. The local horses seem less heavy than the Percheron, and the farmers' traps filling the inn-yards on the show-day were somewhat light four-wheeled *carrioles*, not heavy two-wheeled covered carts, as in the Beauce; so they may breed some good trotting nags.

Horses. At the show in February, 1877, three Percherons (two black, one dark bay) and one black Boulonnais were sold; three of them stood 16¼ hands, and one 17¼. They were grand animals, very active, and lifted their legs well. During the season of 1875, these sires covered an average of ninety-five mares each, those from the Government studs only fifty.

GATINAIS AND BEAUCE.

"ONE universal flat, unenclosed, uninteresting, and even tedious; though small towns and villages are everywhere in sight, the features that might compose a landscape are not brought together. The Pays de Beauce contained by reputation the cream of French husbandry; the soil excellent, but the management all fallow; every acre would admit the exclusion of fallows with as much propriety as Flanders itself."—YOUNG, 1787.

"The soil is a rich loam on a white marl."—YOUNG, 1787.

Gatinais and Beauce.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
½ Loir-et-Cher, north of the Loire	165,209	793,865	415,277	37,740	114,450	120,686	16,905	49,572	191,776	24,123
⅘ths Loiret, north of the Loire	305,613	1,354,240	834,860	50,030	35,350	233,530	29,738	103,808	299,296	31,452
Eure-et-Loir ...	277,780	1,486,577	1,178,645	36,580	7,960	138,402	41,262	97,400	715,617	27,427
	748,602	3,634,682	2,428,782	124,350	157,760	492,618	87,935	250,780	1,206,689	83,002

	Population.	
	Collected.	Scattered.
½ Loir-et-Cher ...	101,598	63,611
⅘ths Loiret	181,202	124,411
Eure-et-Loir	163,520	114,260
	446,320	302,282

	Corn Crops in Acres. Returns, 1876.
Wheat	523,900
Mixed	70,260
Rye	116,675
Barley	131,805
Buckwheat ...	18,500
Oats	596,650
	1,457,790
Potatoes	17,926

Population per square mile.

Gatinais and Beauce	121
France	175

Gatinais and Beauce	20·27 urban	...	79·73 rural.
France	31·06 „	...	68·94 „

Decrease of population from 1866 to 1872.

Gatinais and Beauce	2·28 per cent.
France	1·29 „

Proportion of population who can neither read nor write, above six years o

Gatinais and Beauce	31·1 per cent.
France	30·8 „

Gatinais and Beauce are two countries absolutely distinct in soil and cultivation; but they occupy conjointly so much of the department of the Loiret that they must be considered together, in order that the returns of population, acreage, and crops may be made use of. The description of the agriculture of a country cannot be made to bend to the lines drawn for administrative purposes; and in the district now under consideration the difference between the natural and legal divisions is greater than usual. In France, generally, they are remarkably in unison.

Forest of Orleans.

Bounded by the Loire on the south, with the Beauce on the north-west, and the Gatinais on the east, but belonging to neither, is the large Forest of Orleans, 100,000 acres in extent, the largest in France. It is the property of the state. No part rises to any great elevation, 500 to 600 feet at the most. There is much fine timber in it, almost exclusively oaks, hornbeams, and birch; game is said to be abundant, and wild animals—boars, wolves, foxes, stags, roedeer, badgers, polecats, and martens—exist in considerable numbers. The marshes and ponds are frequented by gulls, divers, teal, and kingfishers, and in winter by wild geese and ducks.

Valley of the Loire.

Between the forest and the Loire, the cultivation is the same as that general in the valley of that river, except that much of the produce of the vineyards is

converted into vinegar, with results as to profit not inferior to those of the grand wines of Burgundy and Bordeaux, and that among the vines asparagus is largely grown, to the extent of 7,000 acres, which brings the cultivation up to the standard of large farming; and the heads rival in size those enormous ones for which the growers of Argenteuil, near Paris, have so long been famous.

Gatinais.

Gatinais, Gatines, is a name not unfrequent in many parts of France, and is applied to countries where there is much waste land and sandy heath; but there is only one recognised country of the Gatinais, as there is only one Champagne, though that name is applied to any level open table-land—as the champagne in Charente, where the grapes that make the best brandy are grown. Gatinais was never a separate province like Champagne, but belonged partly to the Duchy of Nemours—that part called the Gatinais Français, consisting of 250,000 acres, in the department of Seine-et-Marne—and partly to the Duchy of Orleans—that part now in the department of the Loiret, and consisting of 750,000 acres.

Placed between the miserable Sologne and the monotonous Beauce, the Gâtinais gains much by contrast with its neighbours, but it is in itself a very pleasant country to reside in. Some of the open lands are poor, chalky, and dry, but there are many valleys, with bright streams and large meres. Without any great hills (the highest is under 700 feet), the scenery is

varied and agreeable, broken by sandy hillocks, covered with heather, and

"——— blossomed furze unprofitably gay,"

and topped with fir-trees, much resembling parts of Surrey, but with more water, and the addition of piles of sandstone rocks, forming cool glades, and with two large forests—that of Fontainebleau, of 45,000 acres, with its 1,200 miles of roads and footpaths, and that of Montargis, 22,000 acres.

The streams and ponds are well stocked with fish, in spite of the presence of numerous otters; the pike, barbel, and crayfish are especially celebrated. Gâtinais honey, made by the bees which feed on the heather, has a wide reputation. Vegetables, fruits, and flowers are abundant and good. Botanists find here specimens of plants which are met with nowhere else north of Provence. It seems an outpost of the flora of the south of Europe; and wanderers in the forest of Fontainebleau are sometimes surprised by the unwelcome presence of the viper. In 1875 as many as 1,867 vipers were destroyed in this forest, and officially reported; 834 by the keepers and 1,033 by other people. From time immemorial, a reward of twenty-five francs has been paid to the man who brought the most heads to the town-hall. The winner in 1875 brought 379, the next on the list was for 89.

Grapes.

Every grape-producing country concedes to Fontainebleau the honour of growing the most perfect out-door

Grapes. table grapes, the Chasselas. Three hundred acres, divided into spaces by walls about forty-five to fifty feet apart, alternately eight feet and six and a-half feet high, send annually to Paris 1,350 tons of grapes, besides providing for a large local consumption, and dispatching some quantities to foreign countries. The quantity named is about one-seventh of the annual consumption of grapes in Paris. This remarkable result is not owing to any peculiar advantage either of soil or climate, for many other parts of France are equally favoured by climate, and the soil is somewhat cold and stiff, but it is produced by a skilful system of training and pruning, and treatment while ripening, brought to perfection by the accumulated experience of a century. The bunches are carefully thinned, the leaves and tendrils gradually cleared away, and when fully ripe the last leaves are removed and the bunches turned daily, so that the sun may give that golden colour, streaked with brown, which adds so much to the value of the produce. These grapes find their way to most of the capitals of Europe, and reward the care and labour of the growers with a money return of from £16,000 to £20,000 annually. A dealer in plants here advertises as many as 200 varieties of the Chasselas grape.

Land. Two hours' journey from Paris, with land not rich enough to induce high farming, like Brie, nor poor enough to tempt to experimental farming, like Sologne, Gatinais is much inhabited by those who seek rural life as a life of enjoyment, not of duty. Numerous mode-

rate-sized houses dot the country, with whose owners, when in residence, it is "always afternoon." Artists monopolise the humble lodgings and inns in the villages round the forest of Fontainebleau; and landscape-painters have drawn their inspiration, improved their practice, and developed a taste for nature among the dwellers in cities for the last fifty years from scenes in the Gatinais, and continue to do so, as shown by the number of scenes from the forest of Fontainebleau at the Salon of 1877.

But life is not all "idlesse" here, any more than it is elsewhere in France. Those Parisian men of business whose hardest work during their summer residence or their Sunday's outing is budding roses, are active tradesmen, models of industry and prudence during six days of the week. Those artists whose labour seems to the rustics little better than doing nothing, or even hardly that, have made themselves names through the world by their industry. Those Chasselas grapes, which seem types of ease and luxury, are produced by sheer hard work from the earliest rising of the sun, when they must be uncovered to feel its first rays, to the last moment of the evening, when the shelter must be replaced, to protect them from frost.

Saffron.

Gatinais has one especial cultivation, that of saffron. Two thousand acres around Château Landon and Nemours produce almost the whole of this article grown in France; there are not, indeed, three acres of it grown elsewhere. The root lasts three years, and the

Saffron. annual value of the growth averages about £30,000, but the crop is uncertain. A good year is a fortune for the country. It is a plant that calls for continual care and much labour. The flowers are gathered in autumn, usually in October, and must be taken just at their prime: if allowed to fade their value is greatly deteriorated, so the gathering is often continued far into the night; and it is the more difficult, as it must be made just at the height of the vintage, when hands are so fully employed.

Cattle. The general standard of farming in Gatinais is low. There is no local breed of cattle of any sort. All kinds are commonly purchased, not reared. Horned stock consists chiefly of cows for milking, and sheep of the small breed from Berri.

Jerusalem Artichokes The land is too poor for beet. Jerusalem artichokes take its place. They grow where no other root would prosper, or at least prosper so well. The yield varies very much. On sandy soils of fair quality, where they are planted for the first time, the yield is ten tons to the acre. If there is any mixture of clay it would reach twelve to fourteen tons, but upon poor thin soils it drops as low as four tons, or even less. Gasparin places the yield much higher; he states it as equalling twenty-four tons to the acre; the Encyclopedia at nineteen tons. A piece of good soil was planted in March in rows twenty-seven inches wide, and the sets sixteen inches apart in the rows, making 14,000 to the acre. The yield at the end of November from thirty plants, when

the land was unmanured from the previous year, was 1 cwt. 9 lbs. Thirty others, taken from land manured at the time of planting, weighed 1 cwt. 5 lbs.; each plant, therefore, gave an average of about four pounds of roots, equal to twenty-five tons per acre. Twenty-seven inches is too wide a space for the rows to be separated. Had they been eighteen inches, the yield in the same proportion would have been much greater. The question of width in the rows is, however, not important, as the artichoke grows for a number of years on the same ground, the small ones that escape notice when the crop is removed being quite sufficient to stock it. The difficulty of clearing the ground is stated to be an objection, but it becomes none if the same ground be kept devoted to their production. If it should become necessary to clear it, cutting down the shoots twice would suffice; or if they were eaten off by sheep, which are very fond of them, they would disappear, and pigs would grub up the roots. Jerusalem Artichokes

One ton of the roots is reckoned to equal half a ton of meadow hay, and a ton of the stalks and leaves nearly the third of a ton of hay. An ordinary produce of ten tons of roots and four tons of stalks and leaves per acre would give a yield equalling six tons of hay, which is good from poor land and with little manure. This is evidently a very useful root where beet cannot be grown. It comes on any soil, provided that it be not too wet. It yields a crop on dry, flinty, stony, chalky land, where no other root would grow. Some sets were planted in shingle, not much, if anything, better than

Jerusalem Artichokes

such shingle as we see on the coast. The stalks did not grow a yard high, and died off early from the heat, but they gave 1 lb. per plant, which, at 20,000 to the acre, would amount to about ten tons. The trouble and expense of gathering them from such a seed-bed would be too great to make the growth profitable. The artichoke does not exhaust the soil in inferior land, requires very little labour, and the roots can be left in the ground and taken up when wanted. It is not attacked by any insect, nor does it seem subject to any disease. It fears no frost, and requires no such care as beet, and the great growth of stalk, seven to eight feet in height, smothers all weeds. In some soils it would be superior to maize, as the upper growth would give as much as maize, and there would be the roots in addition. The stalks and leaves are much liked by cattle, and especially by sheep, and they could probably be preserved, as maize is preserved, for winter food. The roots are more nourishing than beet, and nearly as much so as potatoes. They suit growing stock from the quantity of mineral they contain, and both fattening and milking stock do well upon them. It is the richest of roots in sugary matters, but the sugar does not crystallise. It can, therefore, only be used for making spirits, of which it yields nearly as much as potatoes, and far more than beet, but of all roots so used it is the most delicate. It changes very much by exposure to the air, and must be worked up as soon as possible after being dug. The same watchfulness throughout the process is essential, or the yield of spirit will fall off one-third. The juice also

rapidly deteriorates unless properly managed. Nor is the pulp, of which 62 per cent. of the weight is returned, so readily taken by cattle as that from beet. The larger yield of spirit from the artichoke over that obtained from beet does not counterbalance its disadvantages where beet can be grown, but it is useful on the poor soils of the Gatinais. The distillery established here consumes thirty tons of root per day, and the cost of the plant was £80 for every ton so used, £2,400. Jerusalem Artichokes

At Dammarie in Gatinais, Montereau on the borders of Gatinais and Brie, and at Monerville in the Beauce, are establishments for collecting milk for the supply of Paris, all belonging to M. Lecomte, one of the largest wholesale milk-dealers. Before the introduction of railways the supply was necessarily procured in the immediate neighbourhood, but as the means of more rapid communication were furnished, the supply was sought for at a greater distance, and large dairies were formed which collect milk from neighbouring farms, prepare it, and forward it to Paris. Milk.

The daily consumption of Paris is estimated to be 75,000 gallons, of which the large dealers supply 50,000 to 55,000, 10,000 coming from milk-dealers near Paris, and 15,000 from cowkeepers within the town itself. The consumption is usually at its maximum in the months of November, March, April, and May. It varies with the temperature, and is largest when the weather is coolest, but diminishes during the other

Milk. months, especially during the hottest, or when there is a large supply of fruit.

From the middle of October to the 1st of June, 95 per cent. of the quantity of milk sent up to Paris finds buyers, but during the other months the sale falls off to about 70 or 80 per cent. of the quantity forwarded.

The surplus unsold is disposed of among the makers of cream cheeses. Some of the larger dealers have establishments of their own where the unsold milk is thus utilised.

The milk-dealers pay to the farmers prices varying from about 1d. to $1\frac{1}{3}$d. for the litre, which is equal to $1\frac{3}{4}$ pints, collecting it at the farmers' doors: The price is lowest from June to November, when it seldom reaches 1d.

It is sold to the Paris dealers, delivered at their doors, at 2d. to $2\frac{1}{5}$d., according to the season, and retailed to the public at $2\frac{1}{2}$ to 3d. for the same measure of $1\frac{3}{4}$ pints.

The milk from the dairies inside Paris is generally sold retail at $3\frac{1}{2}$d. to 4d.; if drawn directly from the cow to the buyer, it is charged 5d. to 6d.; in certain wealthy quarters the price runs up to $7\frac{1}{2}$d., and even 10d. for the litre.

In order that the milk may keep in good condition for at least twenty-four hours, special preparation and care are required, particularly during the hot season.

The carts employed in collecting the milk from the farmers are constructed of open lattice-work, so that there may be a free circulation of air between the cans.

It is collected morning and evening, and the two united collections are forwarded each evening to Paris. Milk.

The morning's milk, having to wait twelve hours before being mixed with that of the evening, is subjected to a double operation:—First, it is placed in cans in a bath of hot water, so as to raise the temperature of the milk up to about 206°. Secondly, it is cooled as rapidly as possible, and kept at a low temperature until the evening.

In the hot-water bath the water is kept at boiling-point; and provided the volume of hot water be seven or eight times that of the milk to be heated, and the number of cans to be heated at least a dozen, the operation goes on as fast as the cans can be removed and replaced—that is to say, that by the time the last can is removed the one that replaced the first one is ready, and the work proceeds uninterruptedly. The cans for the bath are specially made to fit the holes, so the hot milk is poured into other cans, which are removed immediately, and placed in iron cisterns, through which runs a stream of cold water, and there they are left until the evening milk arrives. This also is subjected to the same process of cooling, and in about an hour the temperature of the evening milk is reduced to an equality with that of the morning, and the two can be safely mixed.

This mixing is performed in a circular tank, capable of containing 300 to 1,000 quarts, according to the size of the dairy. The tank stands upon a wooden tripod, high enough to admit of cans being placed under a couple of large taps, and the morning and evening's

Milk. milk is poured in equal quantities at the same moment through a sieve placed in the middle of the tank, so that a complete mixture of the milkings is ensured, and an even quality of milk is delivered to the consumer. The milk is frequently tested, but as it would be manifestly impossible to test the milk of every farmer twice a day, this mixing reduces the injury of any possible adulteration, or watering, called by the French "lengthening," to a minimum.

The cans for delivery are filled as rapidly as possible, the close-fitting covers are put on, and over them is tied a string sealed with the seal of the dairy, and they are sent off to the railway station between seven and eleven o'clock, according to the distance from Paris, in vans with lattice-work sides. The railway-wagons are specially built for the purpose, the sides and flooring being of open-work. They arrive in Paris about two o'clock a.m., where they are received by the carts belonging to the dealers, each driver taking the quantity requisite for his own rounds, and collecting the empty cans on the return journey.

During the cold weather, when the external air does not exceed 50°, it is unnecessary to heat the morning milk, it is then only kept standing in the cool running water; and during the extreme heat of summer the temperature is reduced, before it is forwarded by rail, as much as possible. Sometimes it is passed through a mass of broken ice: some small but unimportant quantity of water is by this means added to the milk; but M. Lecomte has set up in two of his dairies

freezing-machines, which bring the milk to within two degrees of freezing-point. The temperature is raised very slightly during the transit to Paris, and, provided the milk be kept in a cool place, it keeps sound for twenty-four hours. Milk.

In order to utilise the excess of milk taken under contract from the farmers, M. Lecomte has established a manufactory of cheese at Villeneuve, near the largest of his dairies, that of Montereau. The cheese made is an imitation Gruyère, and when the excess is at its height as many as nineteen cheeses are made daily, each weighing about half a hundredweight, requiring eighty gallons, or a total of about 1,500 gallons. There are five copper caldrons, each capable of holding 100 gallons, but eighty only are used, as the cheeses are kept as nearly as may be of the same size, and half a hundredweight seems that most suitable for the Paris market. There is no pretence that the quality of these cheeses is equal to that of the Gruyère made in Switzerland, nor will they keep as long. They are forwarded to market as soon as they are ready, which is in about two and a-half months in summer and four months in winter. They are of good useful quality, and sell readily enough at from 6d. to 7½d. per lb., wholesale, which is much below the price of the true Gruyère. In order to obtain this price the cheeses must be perfect—that is, there must be a sufficiency of holes in them, but not too many. These holes are caused by the fermentation of the moisture left in the cheese. Too much moisture causes an excess of fer-

Milk. mentation, the cheese is full of holes, swells out, and becomes unsalable. With too little moisture there is a deficiency of fermentation, the cheese has few holes, is cracked, dry, and tasteless, and sells at a low price.

M. Lecomte makes about 1,500 cwt. in the course of the year. The profit, even if all the cheeses turned out well, would be trifling; and subject to the deductions caused by imperfect manufacture, it is almost *nil*: the only real profit shown from the operation is in the sale of young pigs fatted wholly on the whey. As many as 250 are kept, and are fit for market at ten or twelve months old.

The money operation of milk-dealing comes out thus:—

Cost at the farmer's door, the dealer collecting the milk ...	5d.	per gallon.
Expenses:—Collection, heating, railway carriage, delivery in Paris, wear and tear of plant, loss by sour milk, and conversion to cream cheese	4d.	„
Profit to the dealer	⅓d.	„
	9⅓d.	„

Some of the large dealers sell upwards of 10,000 gallons a day, which leaves a profit approaching to £15 per day to meet interest of capital, bad debts, expense of superintendence, and reimbursement of the cost of buildings.

Pure milk, free from any manipulation, is not for a certainty obtainable in Paris more than in London. In the first place, the heating process in some degree changes its quality, though without injuring it for ordinary consumption; it is sold at much less money than it could be if not supplied from a distance; and it

could not be kept sound without being heated. The makers of ices do not use milk so heated; they prefer that brought in from the immediate neighbourhood. In extremely hot weather, or when there is much thunder about, the larger dealers use a solution of bi-carbonate of soda, three ounces and a half being dissolved in a pint and three quarters of hot, but not boiling water; one-fifth of a pint of this solution is added to four gallons and a half of milk, which, if adhered to, cannot sensibly increase its bulk; but in the hands of greedy or ignorant persons, who do not keep strictly to the quantity, there is danger of the quality being reduced. This danger becomes actual when the milk is skimmed, or when water is added. To conceal the effect of these practices, various preparations are used to thicken it or restore the richness of colour, such as brown extract of chicory, burnt sugar, colouring-matter from the flowers of the marigold, almond-paste, decoctions of hay, corn or potato flour. These deceptions have been practised on a large scale, and still remain serious, though diminished through the vigilance of the public authorities. Samples taken frequently are analysed, and prosecutions seldom fail. As the quality of milk, however, does vary without any fraud on the part of the dealer, the extreme of quality is never insisted upon; and whereas good milk should contain 13 per cent. of solid matter, such as caseine, butter, sugar, &c., of which butter should be 4 per cent., no conviction takes place if the samples show a minimum of 11½ per cent. of solid matter, and 3 per cent. of butter. Milk.

Milk. This watchfulness on the part of the authorities is having a good effect; and whereas in 1871 no less than 44 per cent. of the milk delivered by the railways was "sophisticated," in 1872 the proportion was reduced to 34 per cent., and in 1873 to 10 per cent. In the retail distribution the fraud was more serious, and still remains so: in 1871, the proportion of falsified milk was 53 per cent.; in 1872, 44 per cent.; in 1873, 34 per cent., which shows that much remains to be done to ensure a supply of pure milk to Paris.

BEAUCE.

Between the basins of the Seine and the Loire is a large plain, about sixty miles by forty, extending over the greater part of the department of Eure-et-Loir, into that of Loiret, into Seine-et-Oise, and into Loir-et-Cher, from 400 to 500 feet above the level of the sea, but nowhere showing any perceptible elevations. This plain is the great corn and sheep producing country of the Beauce.

In noting the statistics having reference to this country, those only of the departments of Loir-et-Cher, Loiret, and Eure-et-Loir can be quoted, because that portion of Beauce that is in Seine-et-Oise would be too greatly influenced by the more rich and populous portion of that department; and though this restriction prevents the figures being exactly correct, they represent more truly the condition of Beauce than if the whole of Seine-et-Oise had been included. Portions, again, of Eure-et-Loir, and of Loir-et-Cher, are not really Beauce: some of

the first is in Perche, and some of the second in Vendômois, both countries essentially differing from Beauce, being broken up into valleys, and traversed by two rivers, the Huisne and the Loir, and their tributaries, contrasting by their rich meadows, bright streams, and wooded heights, with the monotony of Beauce. The northern part of the department, again, is not Beauce, it is much better watered, and has some large forests; but though differing physically from Beauce, the amount of population and the condition of the people do not greatly differ; only the acreage of grass, waste, and woods, as given in the returns, must be considered as being in these outlying districts, and not in Beauce itself.

Soil.

There is a tradition that there were once forests and streams in the Beauce, but the forests were cut down ages ago, so long ago that in the sixth century a bishop of Poitiers of that date could write of the Beauce, that it wanted but six things—springs, meadows, woods, stone, fruit-trees, and vines: every one of these things is wanting now, and is likely to be wanting after the lapse of another twelve centuries. The streams have dried up. The few watercourses on the borders seem to hasten away from the inhospitable country as quickly as possible. They rise now some miles away from what was once evidently their origin. Miserable little ponds, which shrink and disappear as the summer heats prevail, leave the country dependent upon deep wells which yield their water as it were drop by drop.

Without trees, except here and there a small planta-

tion, a few fruit-trees round the farmhouses, and some stunted and twisted elms by the dusty roadside; the foot-paths and roads as straight as they can be drawn, losing themselves in the distance; a horizon as extensive as that of the open sea; windmills, farmsteads, and stacks; villages of the most unattractive type, but numerous; many churches, ten or fifteen being within sight at one time, such is the Beauce, which is, however, never mentioned by Frenchmen without a feeling of pride, justified by the fact that it is one of the richest and best-cultivated corn-producing tracts of land in Europe.

The subsoil of the Beauce is almost wholly chalk, with a surface soil very rarely as deep as three feet. This latter has good consistency without being stiff, requires no artificial drainage, and can stand any amount of rain, contrasting in this respect with its neighbour Brie, where the immediate subsoil is clay. "The Beauce laughs when Brie weeps" is an old saying in the country, but upon the whole Brie grieves less than Beauce has cause to do, over-wet seasons being the exception in France.

Crops. Wheat, oats, of which Beauce has the largest acreage in France, and winter barley, are the main corn-crops, which are much less liable to be laid here than they are on the richer and higher farmed land in Brie, a danger ever present to the mind of the farmer in the latter country. The recent introduction of artificial manures is greatly aiding the Beauce farmer, but the

improvement of the land is less in Beauce than elsewhere, because there was less opportunity for it. It required no draining as the stiffer and wetter land of Brie, nor have there been for generations any waste lands to reclaim as in Brittany and central France; but Beauce has kept pace with the rest of France in improvement in cultivation, for whereas the average growth of wheat was returned in 1840 as being 18¾ bushels per acre, it is now returned as 22¾. Wheat production is as irregular here as elsewhere, or even more so. It varied from 6½ bushels per acre in the bad year of 1871 to 26½ bushels in the good year of 1872. In 1874 it was estimated at 30 bushels per acre, and in 1875 at 20. In 1873 the gross return in money was only £5 11s. 2d. per acre. These great fluctuations derange seriously the calculations of farmers, and the inconvenience is not compensated by any material advance in value in the years of short supply over that of years of abundance. The price of wheat seems fixed at a certain low limit, which cannot be exceeded, let the crop be as small as it well can be, but it may go down very considerably below that limit. These irregular and unsatisfactory results are leading to attempts being made to introduce the cultivation of what may be used in manufactures. Writers in the agricultural papers point out how large is the production of wheat in Russia and America, where the difficulties of want of labour and the distance from the markets of western Europe are being overcome by the enormous increase of agricultural machinery, and the great development of rail and steam communica- Crops.

Crops. tion, and they urge the farmers to seek a large variety of cultivation to make them less dependent upon the one article of wheat.

This advice can be less readily followed in Beauce than elsewhere, because the land is not so rich as in the other wheat-growing districts of France; but the Beauce farmer is not without some resource to assist him in becoming more free in his crops. There never was much natural grass in the country, and what little existed was never good. It is diminishing, and is being replaced by clovers, lucerne, and very largely by trifolium, which permits the feeding of a much bigger breed of sheep. This system suits the growth of spring
Barley. corn, and especially spring barley, the cultivation of which is increasing in view of a demand from England. The soil, climate, and mode of cultivation in Beauce are specially suited to this grain, and the produce promises to be superior to that grown in the districts which have hitherto mainly supplied the English market when foreign barley has been wanted; and it seems probable that the Beauce barley will find a sale in the English market in all seasons on account of its inherent qualities, instead of being taken only in years of difficulty, and as an indifferent substitute for good English corn, as has hitherto been the case with barley from France.

The escourgeon, or winter barley, is a very favourite crop in Beauce, and is much esteemed by the brewers in the north of France. It is sown somewhat later than wheat, and is harvested earlier. It yields more per acre

than spring barley, and sells at more money; or it would perhaps be safer to say that it has hitherto done so. Improved seed will very likely turn the scale in favour of spring barley as regards the yield; and if the quality should improve, as it promises to do, purchases made by English brewers certainly, and by French also not improbably, may raise its money yield per acre higher than that of the escourgeon. Barley.

At the large agricultural show at Chartres, the capital of the Beauce, in June, 1877, a collection of samples of barley grown from English and Scotch seed was exhibited, and it is quite safe to say that, taking every quality into consideration—colour, weight, fineness of skin, roundness of grain—there were specimens among them that could not be matched by any barley of English growth, except in very favourable seasons. It was acknowledged by the growers that this fine barley cost them no more to produce than their ordinary grain, and that the yield per acre was more. The extra price obtainable was fully six shillings per quarter; and this consideration set many of them thinking whether the growth of this barley would not be more profitable than oats, or escourgeon, or even wheat. The value of the straw was an obstacle, as barley-straw is not thought so good for farmers' use as that of wheat or oats, nor does it sell so well in the towns, or at the barracks for cavalry. It is greatly in favour of French barley that it is never grown on land upon which roots have been fed off by sheep, which always affects its colour. The brightest and best samples in England always come

Barley. from land the previous crop on which has been wheat; but this system of farming is far from general, most of the barley being from land on which turnips have been fed off by sheep. In France a highly-manured beet-crop, followed by wheat, and that again followed by barley—both corn-crops being taken without manure—will give the best and finest barley produce. In the Beauce, there being no stock but sheep, chemical manures are largely employed, and these can be adapted specially to barley growth. A paper, with the details of the cultivation and the manures to employ, was distributed freely to the farmers attending the show, and has been circulated through the barley-growing districts. Beauce seems likely to hold in France for barley the rank that Norfolk holds in England; the soil being eminently suitable, the farms large, the open plain totally unencumbered by trees, and the farmers intelligent. In fact, through the Beauce the land is all rented on lease; the farmers therefore have to make the money result sufficient to cover all their outgoings and leave a profit. In other districts where much barley is grown, the farms are small, overloaded with fruit-trees, and much of the land not farmed on a money payment, the landowner and the farmer working the land on joint account. If at the year's end the landowner receives what he has been accustomed to receive for years past, he makes no complaint: and if the farmer has a little more money at the twelvemonth's end, he is satisfied. Such a system, if it does not wholly check, by no means stimulates enterprise.

These remarks apply to Sarthe and Mayenne; and in these departments there could be found no such example of high farming on a large scale as in Beauce. One instance is that of M. Lejards-Manoury: this gentleman has taken a farm on a lease of eighteen years, at a full rent; the extent of the farm is 450 acres; the buildings were ample but old, and he had to repair them at his own cost. He has built a distillery with a high chimney, and is farming beet-root, which is somewhat rare in Beauce. In 1877 he had sixty-four acres of sugar-beet. The work on the farm is largely done by gangs of men from Brittany: in June, 1877, he had more than forty at work. He arranges with the "captain" as to payment, and gives 20s. per acre for three hoeings of beet: the men lodging and feeding themselves, being assisted only by purchasing flour at wholesale price. In the summer he has about 500 sheep; in the winter, during the pulping season, 1,200, and about sixty fatting-bullocks. During the summer, no fatting-bullocks, but twelve horses and sixteen working oxen, and a score of milch cows. He breeds a few sheep, the ewes drop their lambs in December, and in June he had sold the wool for 3s. 6d. per lamb, and the animals were worth 28s. each: he will keep them another year, get another clip of wool, and sell them for 40s. These sheep were merinos with a cross of Leicesters. He had also in June some wretched-looking old ewes bought in: these will drop their lambs in December, and be at once fatted off on the beet pulp. It is of this class of sheep bought

Farms.

Farms. anywhere and of any sort that the increase from 500 in the summer to 1,200 in the winter is mainly composed. M. Lejards is a good specimen of the modern French farmer. Educated for three years at the agricultural college of Grand Jouan, he worked some time as assistant on a large farm in Brie; and it was only when well grounded scientifically and practically that he undertook business on his own account. His barley obtained the first prize at the Chartres show, and he was one of the competitors for the prize for high culture, and received a gold medal.

Mons. Lejards-Manoury contracts for the manure from the cavalry barracks at Chartres for £240 per annum, and spends about the same amount in chemical manures, which he purchases separately, and mixes to suit his different crops; he has also given 250 acres a dressing of marl at the rate of 12 cubic yards per acre.

This example of growing sugar-beet is likely to spread in Beauce; but at present it is only grown extensively on two other farms. The summer of 1875 was wet and unfavourable, and the yield was only 12 cwt. per acre, which is less than was obtained in Artois and Flanders: the quality was good, yielding 5 to 5½ per cent. of alcohol, and 7 per cent. of sugar.

In 1873 sainfoin and lucerne yielded 24 cwt. per acre of dry fodder; natural grass 14 cwt. of hay; carrots 16 tons; late potatoes, which are largely grown, 64 cwt. There is a great manufacturing consumption of these last in France, in works where they are converted into flour, starch, and sugar.

The particulars of three farms in Beauce will give a fair idea of what they are generally; though necessarily each one will have points of difference, they all have some points in common. In all the horned stock consists of cows; there are no oxen. The horses are all young, and in over-abundance for the work to be done; they are, in fact, being prepared for sale while doing the work of the farm, and the sheep are all merinos, pure or crossed. Farms.

The first farm consists of 233 acres, at a rent of 21s. per acre, or, including rates and taxes, 24s. 6d. The gross produce per acre is about £5, the capital £6 10s.; but in this the manure is not included. The stock consists of sixteen Norman cows, eleven horses, and 225 sheep. The horses are all very young; one was bought at eighteen months old for £36, which is a high figure, but will probably make £50 at three years of age. Another cost £17 at the same age, and will make £40. The yield of wheat in 1874 was 3½ quarters to the acre, oats 5¼, but this was unusually large; lucerne cut three times gave 3½ tons. This is a fair specimen of a large number of farms in Beauce.

The second is owned by the farmer, and would make from £24 to £32 per acre freehold, according to luck in selling; it consists of 250 acres. Small estates in the same neighbourhood would realise double, and the buyers would even then save money in working them. The stock consists of nine Norman cows and three heifers, thirteen horses, and 560 sheep. The horses are bought young, as usual, but as the farm is larger, they

Farms. are kept longer, and not sold until they are five or six years old, when they are at their prime. The sheep are merinos, improved, but not crossed with English blood, as the farmer finds a sale for the best rams, which are selected for the English colonies on account of their wool. He has made as much as £160 and £200 for a choice ram. The yield of wheat averaged for four years 4 quarters 1 bushel. Lucerne is the chief source of supply of green fodder, and lasts five years. No clover is sown. Trifolium is used as an annual; there are but 2 acres of natural grass, and only 7½ acres of roots, mangold.

The last farm of the three is above the average, and obtained the prize for good cultivation. It consists of 750 acres, and is stocked with 60 cows, 27 horses, 600 sheep, and 300 lambs. From 500 to 600 quarters of wheat are sold yearly. The crops in 1874 consisted of 187 acres of wheat, 150 of barley and oats, 38 acres of a mixture of rye and wheat upon some poor soil; and the roots consisted of mangolds, carrots, potatoes, cabbages, lucerne, sainfoin, clover, vetches, and maize to cut green.

Value of Land. Throughout the Beauce the value of the land, freehold, seems to be about £40 per acre, the letting value 22s. per acre, the farming capital from £6 to £8, the leases from nine to twelve years, and the system three courses, with no fallow.

Game. As regards game, rabbits are very scarce. Hares can be found in fair numbers, and they are big and strong.

Of pheasants there are none, but partridges are abundant, and the little bustard breeds freely. Introduced from Algiers about twenty years ago, it may now be seen in flocks of 100 in the autumn, when it migrates. The shooting in France being practically open to any one (except where proper notice is posted that it is reserved, and keepers are on the spot to warn people off), so good a partridge country as Beauce is overrun early in the shooting season, and on the first day of the opening in 1875 as many as 137 sportsmen from Paris turned out of the train at one station in Beauce, Angerville, accompanied by an average of a dog apiece, attracted to the spot by the reputation of the shooting, and probably also by the knowledge that the keeper of a small inn at Angerville is one of the best cooks in Europe, and has a capital cellar of wine. This wild kind of shooting makes the birds pack early, and by the middle of October they rise in flocks of thirty or forty, well out of reach of the sportsman, who, in the total absence of shaws and hedges, has small chance of getting within shot of his game. The larks from La Beauce are celebrated; they are caught in thousands during winter, but are rarely seen in summer; from them are made the renowned *pâtés* of Pithiviers and Chartres. Game.

Beauce is one of the largest sheep-producing countries of France. The number is about the same as in Berri, but they are not far from double the size of the Berrichons, and they are yearly increasing in their meat-producing properties. The breed is the merino, pure or Sheep.

Sheep. crossed, exclusively—the merino improved from the original stock, which was reared solely with reference to its wool, so as now to produce an animal with a good yield of meat, while retaining a clip of wool of 8 or 10 lbs. Indeed, there are merinos which in shape and general appearance very closely resemble a large Southdown. The cross most in favour is that with Leicesters, or Lincolns, or Cotswolds. The transformation, however, is far from being complete or general: on too many farms the sheep have too much bone, and the skin is too full of creases. Every year, however, shows progress, and a fourth at least of the sheep in Beauce have an English cross. Some breeders cling to the old breed of the Rambouillet merino, not allowing any cross, and they have found their account in the sale of their rams for export to the colonies; but this trade now seems passed away: the large majority of farmers breed for the butcher as well as for the woolstapler. At the show at Chartres, in 1877, there were 75 entries of sheep with the Leicester cross, and 44 of pure merinos; the prizes in the main went to the crossed sheep.

Cattle. No cattle are bred in Beauce, and they are very rarely used in farm-work. The only stock of this kind are cows kept for dairy purposes. They are almost wholly Norman.

Horses. The farm-work is done by horses of the Percheron breed. They are not reared in the country, but bought in the neighbouring district of Perche. The purchase is made when the horses are young, at about eighteen

months or two years old, after they have been gently worked upon the smaller farms of Perche, but poorly fed. In the hands of the Beauce farmer they receive various treatment: on the smaller holdings they still do light work, and are bought more with a view to a profit on their sale than for the work they do; on the larger ones, the profit on re-sale is not lost sight of, but farm-work is considered of most consequence. On all they are highly fed, and do a great deal of fast cartage, by which their paces are brought out. The land, even on the largest holdings, being considerably divided, portions of the farm are frequently at a considerable distance apart. As the journeys must be made, and the sowing and harvesting done as quickly as possible, the horses are driven at full swing. On some farms the work is very severe, and many horses break down under it; on others the business of preparing horses for the Paris market is made a great point. Two horses are kept where one would suffice. They are kept for one, two, or three years, and sold, the lightest and most active for the omnibus traffic, the heaviest for the team-work. In proportion to his acreage, the Beauce farmer of every kind keeps many horses: he must not risk being short of strength at seed-time and harvest. The best Percheron horses are found in Beauce. They are selected by the farmers who know the breeders; and it is at the fairs of Chartres, La Loupe, Nogent le Rotrou, Senonches, Courville, Châteauneuf, Bonneval, &c., that they must be sought, though very probably the best animals are never taken to the fairs at all, but are to be seen at the

Horses.

Horses. stables of their owners. This is much as it is in England; and as in England, there are people in each of the chief towns of the country who make a business of knowing where every good horse is to be found, and who in the course of a day would take a stranger to see every good animal that was for sale for ten miles round. In the hands of a Beauce farmer there is hardly an old horse to be found, certainly not a colt or a filly, and very rarely a mare. In Perche, on the contrary, there are only brood mares and young stock.

Population. The population is only 121 to the square mile, as against 175 for all France, but can hardly be called small, considering that it is almost wholly employed in farming, nor is it superabundant; there are no more people than can well be employed. About 450,000 are returned as living collected together, and 300,000 as scattered; but those living collected are so in agricultural villages, and are not engaged in any manufactures; 80 per cent. are called rural, and 20 per cent. urban, but the town people are dependent upon their rural neighbours, and live by supplying their wants. Eure-et-Loir, indeed, shows the large proportion of 84½ per cent. rural, and only 15½ urban: it may really be called wholly rural.

Education. The position of education, as compared with other country districts, is good: only 31 per cent. of the inhabitants above six years old are unable to read or write. The average of all France is 30·8. Eure-et-Loir is especially good, the proportion being only 23·4.

ILE DE FRANCE AND BRIE.

"THE Ile de France is the only spot in our territory where farmers are to be found as rich as farmers are in England. Large fortunes have been made here by farming, particularly during the last fifty years; some farmers here are worth their £40,000, and many others have fortunes of several thousands.

"Large properties have been preserved here more than elsewhere in France. There are many of £4,000 a year and upwards. The Duke de Luynes has £40,000 a year in landed property chiefly in this locality."—LEONCE DE LAVERGNE.

Ile de France and Brie.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
Seine-et-Marne ..	332,740	1,434,085	991,335	70,577	17,420	259,062	43,180	95,554	581,910	22,921
Seine-et-Oise ...	508,698	1,400,907	889,660	39,185	24,967	229,417	49,881	70,334	375,836	19,039
	841,438	2,834,992	1,880,995	109,762	42,387	488,479	93,061	165,888	957,746	41,960

	Population.	
	Collected.	Scattered.
Seine-et-Marne ...	241,356	91,384
Seine-et-Oise ...	421,958	86,740
	663,314	178,124

	Corn Crops in Acres. Returns, 1876.
Wheat	480,260
Mixed	33,172
Rye...	79,642
Barley	54,607
Buckwheat ...	542
Oats	479,547
	1,127,770
Potatoes	79,150

Population per Square Mile.

Seine-et-Marne	152
Seine-et-Oise	265
France...	175

Ile de France and Brie	28·28 urban	...	71·72 rural.
France	31·06 ,,	...	68·94 ,,

Decrease of Population from 1866 to 1872.

Ile de France and Brie	2·30 per cent.
France...	1·29 ,,

Proportion of Population who can neither read nor write, above six years old.

Ile de France and Brie	16 per cent.
France...	30·8 ,,

BRIE.

Between the Seine on the south and the Marne on the north, forming the principal part of the department of the Seine-et-Marne and a portion of that of Seine-et-Oise, is the large wheat-producing country of La Brie, a great and elevated level plain, nearly forty miles square, undisturbed by any hills. It presents a marked contrast to its rival, La Beauce, as it is bounded by the two rich and populous valleys of the Seine and the Marne, and is crossed by three or four other rivers which, if not important, add very much to the agreeableness of the country, and supply it with that water which is so painfully deficient in La Beauce. These streams, with their feeders, drain an area of about 800,000 acres: 1,800 watercourses are mapped, marked, and surveyed, and fifteen years ago 800 miles of these watercourses had been cleaned out and deepened, and are so looked after that they are more than three feet below the level of the surrounding land. Since that time the process has continued. The effect of such a system is that most of these watercourses, and some of the smaller streams, are usually dry in summer; but the soil of Brie, being stiff, requires this power of getting rid of surplus water, which in La Beauce drains away naturally.

Some large forests, many woods, nursery-gardens, and orchards, enliven the landscape. There are only two towns with more than 10,000 inhabitants—Melun with 11,130, and Meaux with 11,202; but the country

swarms with a prodigious number of villages, hamlets, farmsteads, and country seats.

SEINE-ET-MARNE.

Estates. Seine-et-Marne has always been a favourite resort of those who could indulge in the investment of large sums in land; and though estates much more extensive are to be found in the poor district of the centre of France, nowhere are there so many having so high a rental. Those of hundreds of acres in extent, letting at from £400 to £4,000 per annum, are far from uncommon. That of Baron Rothschild contains 8,000 acres. In the Seine-et-Marne there are more estates—815—paying a land-tax of over £40, than in any other department in France, and a smaller number of landowners; and the amount of the land-tax, £240,000, is only exceeded by that paid by Paris, by the manufacturing departments of the Nord and Seine Inférieure, and by the adjoining department of Seine-et-Oise, which contains such towns as Versailles and St. Germain, and which, in a very great degree, is a suburb of Paris. These statistics are taken from the returns of 1858; there are none later, but there is no reason to suppose that there is any change in the proportions. This occupation by large landowners by no means excludes the small. There are as many as 10,000 owners cultivating their own soil and living by it in Seine-et-Marne, while there are only 6,000 in Eure-et-Loir (Beauce); and 13,000 day-labourers, out of a total of 26,000, are also landowners.

Very large sums have been expended in road-making—as much as £600,000 since 1852; and it is noteworthy that as the outlay in this respect has increased, so the defaulters in payment of highway-rates have decreased, and rents are rising. Roads.

SEINE-ET-OISE.

The southern portion of Seine-et-Oise forms part of Beauce; the eastern forms part of Brie; and the northern, though not in Brie, resembles it in the nature of its soil and cultivation. Upon the whole, Seine-et-Oise is far more picturesque than Seine-et-Marne. It abounds in pleasant sites; the country is more broken, well wooded, and watered. The Seine, with an infinite number of windings, goes right across it; the Oise and its tributaries provide the northern part with streams; the Essonne, the Orge, and the Yvette, and many other smaller rivers, do the same for the south-west. The prettiest part of the department is in the south-west, the old country of Hurepoix, which is enlivened by bright streams, diversified by woods and forests, with sandstone rocks, a country almost unknown to English travellers, and not much more frequented by French. The railway by Sceaux and Chevreuse passes through part of it. A clever newspaper correspondent thus writes of it:—"The panorama was one of varied and seductive loveliness, and its general features had an almost Kentish aspect. The advantage, on the whole, is, I think, on the side of the undulating country of which I speak. Its hills affect the shape of mountains; they

are grouped as if by a cunning landscape-painter, and wherever you see in a coppice a bit of broken ground, it has not the blanched hue of the chalk, but the warm tawny colour of a red sandstone soil."

Residences.

Seine-et-Oise, from its natural beauty and its proximity to Paris, has been the favoured spot for the erection of many royal and noble palaces. Versailles, St. Germain, Rambouillet, Marly, Meudon, Malmaison, St. Cloud, all either built or possessed by royalty, set an example which the courtiers were not slow to follow, and more than forty noble habitations, as well maintained, and as luxuriously furnished, as when the French aristocracy was at the height of its power, are still mainly possessed by the descendants of the original owners, and attest to the vitality of a class which is commonly thought to have been extinguished by the revolutionary torrent. But though so many ancestral dwellings are kept up as gloriously as at any former period, there are many here, and indeed elsewhere in France, which are habitations of genteel poverty. From the ducal residence of the family of De Luynes, whose owner is master of £40,000 a year from land in this neighbourhood alone, to the old château of a poor nobleman, the distance is great indeed. The newspaper correspondent already quoted says of a château in Seine-et-Oise: "Our château, which I present as a general type of a rural squire's dwelling, is only twelve miles from Versailles, and thirty from Paris. It lies in a fat vale, hemmed in by rude wooded hills of picturesque outline; one of the

numerous valleys to the west of Paris in which the Benedictines settled. Capacity for elevating pleasure is crushed out in the perpetual race after francs and centimes. The love of display, so strong in the French character, is extinguished. An avenue overarched with light rows of stately trees is grass-grown. Half the windows along the façade of the château are built up to keep down taxes. Lettuces and potherbs flourish on terraces raised two centuries ago for the delectation of lords in red-heeled boots and ladies in sweeping trains. Nothing can be more dismal than a French château inhabited by genteel misers. Its chimneys were made for roaring wood fires, and its high doors and windows to be heavily curtained. With fireless hearths, carpetless-tiled floors, and skimp muslin and dimity hangings, the spacious old-fashioned chambers have the chilling dreariness of a deserted barrack-room." Residences.

Modern constructions, rivalling the older ones in all the glories of architecture, decoration, and "plenishing," have been built by the financial princes of Paris: the wealthy manufacturers and tradesmen are also largely represented. Every available spot within reasonable reach of a convenient station is crowded with cheerful little boxes buried in a mass of foliage, fruit, and flowers. No one place in the whole department is eight miles from a railway station, and no one station is farther from Paris than a three hours' journey by the slowest trains. The chief town of the department is the political capital of France; the military college of St. Cyr supplies 250 young officers yearly to the army; the Agricultural Towns.

College of Grignon has its 100 pupils; half a dozen busy market-towns average 7,000 inhabitants; 250 mills, whose productions rank among the best in Europe, supply Paris with flour; 1,500 quarries contribute to its paving and building; every village has an establishment of some kind connected with Paris trade, headed by the celebrated porcelain manufactory of Sèvres; each household seems to have its work to do for Paris in glove-stitching, making up clothes, artificial flowers, &c.; and—certainly not least in consideration, or in the amount of money expended—all the washing of Paris appears to be done in Seine-et-Oise, if we may judge by the acres of linen exposed to dry in the valley between Sèvres and Versailles.

Estates. Like its neighbour, Seine-et-Marne, Seine-et-Oise is a country of large estates, and it stands second to it in the number of properties that pay the land-tax of more than £40 per annum, there being 705. Seine Inférieure has 608, no other department, except that containing the capital, reaching 400; in the amount of the tax paid it exceeds Seine-et-Marne, and is only exceeded itself by Seine Inférieure and the Nord, always excepting the capital.

This is at the same time one of the departments the most cut up into small properties, there being 126,000 registered which pay a land-tax of less than 4s. 2d. Seven departments only have more. 12,000 owners work their own land, and do nothing else, and there are as many day-labourers—that is, more than half of this class—who are also landowners.

It is in these two departments that we shall probably see the first employment of railways on the sides of the roads. The bill has been favourably reported upon by a Committee of the House, and they will act as feeders to the main lines already established. By the statutes, there must be a space of at least six yards left on the roads from the extreme outside of the wagons. The line must be on the side, not on the centre of the road, and the rails shall not be above the level of the roadway. The speed is not to exceed twelve miles an hour, to be slackened when approaching other conveyances, and at cross roads; and the trains must stop only at the fixed stations. As the main roads in France are of ample width, and usually laid out straight, these steam tramways will be easily made; and running through countries so populous as these two departments, requiring such constant communication with the main lines, both for passengers and produce, they will probably pay well. Steam Tramways.

The population in these two departments is large —152 to the square mile in Seine-et-Marne, and 265 in Seine-et-Oise. It is returned as living collectively, there being upwards of 660,000 so stated, and 178,000 as being scattered. But in spite of this aggregation, the occupations are mainly rural, 79 per cent. in Seine-et-Marne being so returned, and 21 per cent. as urban; while in Seine-et-Oise the proportions are 64·36 per cent. rural, and 35·64 urban. If deduction is made of Versailles with its 61,000 inhabitants, Population.

and of St. Germain with its 22,000, which are really only detached portions of Paris, it will be seen how greatly rural occupations prevail.

Education. In education the standard is higher far than the average of France, as in Seine-et-Marne only 20 per cent. of those above six years of age cannot either read or write, while in Seine-et-Oise the proportion is as low as 12 per cent. Only nine departments show more favourably, and one of these contains the capital.

Cultivation. Although the old saying that "La Brie and La Beauce are the two paps that feed Paris" is no longer absolutely true, seeing that Paris requires much more than they can furnish, and that improved communication makes Paris more independent of the growth of corn in its immediate neighbourhood, yet Seine-et-Marne retains the superiority which old writers attribute to Brie. It is true that thirty departments now equal or exceed it in the number of acres sown yearly with wheat, that fourteen do so in produce, and that four exceed it both in acres and produce, but no part of France equals Brie in the quantity grown per acre. The average in 1872 was thirty-one bushels (that of Great Britain is estimated at twenty-eight bushels), an increase of ten bushels over the average of thirty years ago, which means that on some farms the yield must have reached six quarters to the acre or more. A high agricultural authority, writing in the autumn of 1874, says:—"We have during the last two months visited the corn districts of

France, and nowhere have we seen such crops as in Brie," a phrase which would be true in any season except those unusually wet.

The four-course system is general. A quarter of the arable land is sown with wheat every year. The area is increasing, as from the extension of railways it has become less profitable to grow meadow-hay; and from the convenience of getting manure from Paris, arable land pays better. On many farms wheat and beet are grown alternately for some years; sometimes another corn-crop follows wheat—the heavy amount of manure given to beet being sufficient for the two following crops.

Beet.

There are 75,000 acres of beet in Seine-et-Marne and Seine-et-Oise. Only five departments have more than either of them, and they are in the north, which is the seat of the sugar manufacture. Some sugar is made in Brie, but the beet is mainly used for distilling. A distillery is a common adjunct to a large Brie farm. There are fifty-one attached to farms in Seine-et-Marne alone.

Manures.

Beet requires to be largely manured, and nearly one-fourth of the guano imported into France—88,000 tons out of 378,000—is used in Seine-et-Marne and Seine-et-Oise. In Seine-et-Oise marl is dug from pits which are from ten to thirty feet deep, and is found very generally through the department. It is largely used, and has been for a long time. Its use was common in the

Marl. seventeenth century. The straw and green fodder is sold in Paris, and manure brought back. And besides this, large quantities of rape-cake, native guano, and phosphates are used. From 90 to 200 cubic yards of farm-yard manure are applied to the acre. The returns in 1873 show the consumption of chemical manures in Seine-et-Oise to have amounted to 1,400,000 tons, which is the half of all used in France.

Farms. The characteristics of Brie are its large farms and high farming, on the open plains; but in the valleys, where the pastures are good, and round the margin of the great plain, medium and quite small farms prevail—from 250 acres down to holdings so small that the owner and his family more than suffice for the work, and have time to hire themselves out as day-labourers.

Buildings. Generally speaking, the homesteads are large and ample; though on the smaller farms they are somewhat deficient, and outlay upon expensive, or upon what we in England should call merely necessary buildings, does not bring a corresponding increase of rental from them. On the larger farms they are excellent; they usually—almost always—surround a large yard, having but one entrance by a stone arched gateway, closed at night by a folding gate; the residence occupies one side, and round the others are the barns, cattle and sheep sheds, stables, loose-boxes, distillery, boiler-house, steam-engine, threshing-machine, cart-sheds, &c. In a French farm all the corn and hay are put under cover, the sheep and

oxen are all fed in-doors for a large portion of the year. Many farms house over 1,000 sheep in separate bays, of which there are usually eleven; so that with 100 sheep in ten of them, there is always one in process of being cleaned out. The centre of the yard is occupied with a great heap of manure, in which are mixed the dung from the stables and the droppings from the sheep, and which is kept moist by the drainage from the cow-sheds and the liquid from the distillery, poured over the mass by means of a machine in the nature of a Jacob's ladder. Buildings.

The rent of land in Brie is high. An advertisement of the sale of one in April, 1875, states that it consists of 390 acres, the rent £740—about £1 19s. per acre—and the upset price £18,000. This would be considered a medium-sized farm, the larger ones running from 1,000 to 1,500 acres. The land is usually let on leases from nine years and over; smaller holdings near towns make much higher rents, but they are mainly farmed by their owners, and when for sale realise a price wholly out of proportion to their letting value. Wages are high. A man can more easily earn 2s. 6d. a day now than he could half that sum formerly. Labour is largely employed; some farms could be found of 800 acres, on which 100 men are at work upon an average daily. Rents. Labour.

The stiff soil of Brie, with its impermeable subsoil, gains much by drainage, and much has been done. Drainage.

Drainage. The drains are sometimes a yard and a half deep, and placed at various distances. Before they were drained, the water has been known to stand on some farms, after heavy rains, deep enough to float a boat. This drainage presents no difficulties on the large estates, but on others, where the advantage would be equally great, it is rendered impossible by the smallness of the properties. There is one farm near Coulommiers, of 288 acres, composed of 230 separate holdings. Such a condition of things precludes high farming; the defects are seriously felt, but a remedy does not seem possible. The owners of small plots will not sell except at exorbitant prices. There are some farms of from 200 to 300 acres, that are pretty well together; it is rare, however, to find this quantity of land all contiguous, except in the large estates.

Machinery. The use of machinery is becoming more general; threshing-machines have long been in use, and in the arrondissement of Melun (250,000 acres) there were, in 1873, seventy reaping and twenty-five mowing machines. The number has increased rapidly since then. It is becoming the practice for the smaller farmers to engage with the larger ones for the hire of implements, and also for them to club together for the purchase of horses and utensils, thus forming a kind of agricultural association; the only method by which the effect of the extreme division of the soil can be modified, so as to render it not injurious to the country at large.

Steam-power in doing field-work is not at present in much use, but it is making progress. It has been used by M. Decauville on his farm of 850 acres at Petit-Bourg, nineteen miles from Paris, since 1867, and the same gentleman is making steam ploughs at his iron-works, suitable for French farms, less expensive than those of English workmanship. Steam.

The value of ploughing done by steam is acknowledged; horses are getting as scarce and as dear in France as in England. Bullocks, much used in France, are a resource that the English farmer has not got, but they also are getting too dear: being now kept in high condition, their value approaches too near that for the butcher, when they have to be purchased by those who want them for work; they are still largely used, however, but where the farms are large enough steam is superseding them, and the use of steam ploughs has received a great impetus from the experience of the Messrs. Tetard at Gonesse after the German occupation. On the 6th September, 1870, these gentlemen were compelled to take all their live stock into Paris; the whole of their crops and everything in the barns and about the place was burnt. After the siege they took possession, early in April, 1871, of a portion of the farm-buildings, and they found themselves with 1,200 acres of untilled and unsown land, seven horses only out of 167 they had taken into Paris, not a head of any other kind of stock, and no fodder, and in a country where the cattle-plague was raging. They immediately got over steam ploughs from Fowler; by the 18th of May

Steam Ploughs. they were at work. In one month from that time 600 acres were sown with sugar-beet in good condition: the season was saved, and the cost of the steam machinery was repaid by this alone. In August and September the steam plough was again at work preparing the land which had lain under an enforced fallow, and relieving Messrs. Tetard from the necessity of buying more than half the usual number of working oxen. The spring work in the following year was performed without difficulty, and in May, 1872, 540 acres were sown with beet. The autumn of that year gave another opportunity for showing the advantage of steam: the land was soaked with water; the beet was on the ground, the sugar manufactory ready for it, but no animal power could move the roots in sufficient quantity to be in time for the season, which only lasts three months. Eighteen oxen could not drag two tons of roots out of the deep mire. Fowler's steam was again called upon, and the loaded wagons were drawn on to the hard road.

Farms. The detailed accounts of three farms will give a fair idea of farming in Brie, and these are all paying, not fancy farms; they probably are somewhat above the average of their neighbours, but not much, and very few large farms in the whole country fall much below them.

Rouvray. The farm of Rouvray, near Melun, worked by M. Chertemps, consists of 1,050 acres. It is one of the largest in Brie: the surface-soil is clay mixed with silica; the subsoil is a sticky clay impermeable to water;

the surface is very level. It is well drained, two-thirds at the cost of the tenant farmer, and one-third at that of the landlord, but the tenant pays 5 per cent. interest on the outlay of the landlord: the drains are more than twenty yards apart, and are a yard and a half deep; the cost was £4 per acre. Before the drains were made the water always stood after heavy rains, forming large lakes. The fields are bordered by pear and apple trees, which furnish 12,000 to 15,000 gallons of cider annually, and are laid out in large pieces so that steam-power may be easily applied when it is clearly profitable to do so. The plantations which are kept up as a shelter for game, have been moved from the centre of the fields to the ends, and the whole estate is provided with good roads, which are essential wherever much beet is grown. Farms.

The principal crops are wheat, beet, rape, flax, oats, and lucerne; rye and buckwheat are grown to a small extent, chiefly as food for game. No very strict system of rotation is followed; the crops vary as it appears probable which will pay best. The land for beet is ploughed lightly as soon as the corn is removed, again a second time before winter, and a third time in spring. The ploughing is done by contract at 7s. 6d. per acre for ordinary work, but at 12s. per acre when prepared for beet. Hoeing is all done by hand, labour being plentiful: the first hoeing at 3s. 6d. per acre; the second, which includes the pressing down of the roots, at 8s. 6d. The beets always have four or five hoeings, being rolled after the first: with this care a crop of sixteen tons to

Farms. the acre is looked for, which is distilled on the premises. The growth of beet has opened the land very much.

Lucerne lasts three years; it would last another year, but M. Chertemps prefers not to leave it until it wastes, and gets choked with weeds. It gives three cuttings a year, and a total produce usually of four tons to the acre. It can be grown profitably on the same land after an interval of twelve years.

Flax. Eighty acres are in flax, which will bring in £16 per acre gross value. Riga seed is used, and it is sown broadcast; it is hand-weeded. The growth of flax is rather increasing in Brie.

Wheat. The great crop of Brie, wheat, is a very anxious one for the farmer, as it is so liable to be laid upon the strong highly-farmed land. The average growth upon the farm at Rouvray, allowing for the years in which it gets lodged, is thirty bushels to the acre. The ploughing for wheat is always shallow; deep ploughing encourages the growth of catlock, to which Brie land is very subject. It is quite common to see the fields yellow with its flowers.

There is only one cow on the farm, not another head of horned stock.

Sheep. The live stock consists of 1,800 sheep. They are an early and prolific breed, such as is found in Syria and Algiers, crossed with merinos. They begin to breed the second year, and one-third of the ewes drop two lambs. They sell at from 28s. to 32s. when eight months old, and get to weigh 110 to 130 lbs. at eighteen months. It is said that they will breed three times in two years.

They are pastured in summer, and kept in-doors in winter, when they are fed from the pulp of the beetroot.

The rent of the farm is 30s. per acre; but M. Chertemps has expended much money himself, having drained two-thirds of the land at his own expense. The inventory would now amount to at least £12,000.

Farms. Villa-roche.

A first prize for cultivation has been obtained by M. Garnot for his farm at Villaroche, near Melun. It consists of 575 acres: the rent is 36s. per acre, Government dues 7s. 6d., and interest on improvements 1s. per acre—total, 44s. 6d.

Beet.

The soil is clay, with an impermeable subsoil, and has been drained by the landlord, at a cost of £2,000, for which the tenant pays 3 per cent. per annum interest. Beet is the chief basis of the farming, and it occupies this year (1873) 175 acres. The land for it was manured with twelve to fourteen tons per acre of farmyard manure, to which had been added three-quarters of a hundredweight of the sulphate of ammonia. This amount of manure is applied every second year. Beet requires continual hoeing, until the leaves cover the ground, and, as hand-labour is dear, never falling below 2s. 2d. per day during the winter, horse-hoes are used, and Crosskill's roller follows the hoe twice, and sometimes three times. The ploughing, sowing, hoeing, and rolling are done by oxen, which are driven very quickly; they get over the ground quite as fast as horses. They are well fed, having five quarts of oats per day each. There are 105 acres in lucerne, which is cut three or four

Farms. times, and is ploughed up after four years. Straw and green crops are sold on an average to the value of £800 per annum, and manures to more than this amount are bought. When the wheat escapes being laid it yields forty-four bushels to the acre. It is drilled in rows eight inches apart, and receives in autumn a top dressing of three-quarters of a hundredweight of sulphate of ammonia per acre. The sheaves at harvest are tied with bands of baste, which cost 10s. per 1,000, and last five years. Oats yield nine quarters to the acre. All the beet is worked up in the distillery.

The sheep are kept under cover in a building 54 yards long by 16 broad, divided into 11 bays, each able to contain 100 sheep. One bay is always empty for the convenience of removing the dung into the yard, where it is mixed with the other manure, as is usual in Brie.

The permanent stock consists of 17 horses, 24 working oxen, and 18 milch cows. Thirty head of horned cattle are fatted yearly, and 1,200 sheep; and besides these, the working oxen are put up to fat as the work gets light, beginning with beet-pulp, and finishing with cake. The price of working bullocks is now £44 to £45 the pair. The sheep are bought in, not bred. The cows are of the Swiss breed, and cost about £23 each. Some milk is sold at Melun, but it pays better to use it for fattening calves, which make £5 at two months old; they are sold at 1s. per lb. net weight, which is reckoned by deducting 40 per cent. from the live weight at the scale.

Produce of various kinds to the amount of from

£6,000 to £6,400 is. sold off the farm yearly, of which Farms.
from £2,400 to £3,200 is in the form of spirit.

On another farm of 750 acres, the rent of which, including Government dues, is £1,500 per annum, the stock consists of 18 horses, 32 oxen, 1,000 sheep, besides which 30 to 40 oxen are fatted every year. The sheep bring in about £700 per annum from wool; £500 to £600 from the sale of fat sheep, and the letting of rams, which make £8 to £12 for the season. The flock is entirely merino, but it is greatly improved as regards early maturity: at eight months old the lambs weigh 120 to 132 pounds, and give nearly six pounds of wool; the ewes weigh 154 pounds, and the shearlings about the same at 18 months old. The ewes drop young when two years old; they give 11 pounds of wool, selling now (May, 1873) at 1s. 1½d. per lb.; that of the lambs sells at 1s. 4½d. This flock produces as much meat as those breeds most remarkable for that character, and has over these latter a marked superiority in the value of the fleece; and on this account the rams are much sought for.

The progress of farming in Seine-et-Oise can be traced Puiseux.
with unusual clearness in the farm of Puiseux, which has been in the same family for four generations, nearly 100 years. In 1784, M. Thomassin rented the farm, then about 300 acres, from the Marquise de Vauvray, at a rent of 10s. per acre. At that time fallows were general, artificial grasses hardly known, and wheat and rye together gave only twenty bushels to the acre. At various periods other land was added. The times were

Farms. Puiseux.

rough for farmers, with a fixed maximum of price and payment in depreciated paper money, but M. Thomassin fought through them, and during the Empire made money enough to start seven children in the world; and in 1810 he retired, giving up his own farm to his youngest son. Worse times succeeded, and up to 1816 it was a desperate struggle; overwhelmed with taxes, his men drafted off to be food for powder, subject to the miseries of two invasions, the farmer was brought almost to ruin. Two or three good years set things right again, and in 1819 M. Thomassin bought the freehold from the heirs of the Marquise de Vauvray, his land now standing at an estimated rental of £600, being about 20s. per acre.

From this time the old system of farming was broken through, a large flock of sheep was kept, straw and green fodder sold off the farm, and 140 loads of dung bought yearly. Improved implements are introduced, green fodder and roots take the place of fallows, rye is abandoned, wheat yields over twenty-two bushels to the acre, and oats forty. M. Thomassin is able to put each of his four sons at the head of a large farm, giving up the family one to his son Stanislaus, in 1836. Under this son the produce of wheat rises to twenty-eight bushels, and oats to forty-seven. In 1844 the first threshing-machine in the district is set up on this farm; in 1856 a distillery is established. In 1862 the land was in turn handed over to M. Theophilus Thomassin, the present occupier, who in this year (1877) has received the prize for high farming given in the department.

The distillery now consumes 20 tons of beet per

day; the pits hold 300 tons of pulp; there are sheds large enough to cover 600 tons of roots; there is an abundance of the best implements. The total holding is 675 acres, 50 of which are light sand, and 625 are calcareous, with a surface-soil of sand and clay. On these 625 acres the course is, first, beet; second, wheat; third, beet, rape, or green fodder; fourth, wheat; fifth, oats: 75 acres are in artificial grass. The manure is obtained from 17 horses, 20 working oxen, always on the farm, to which are added 10 more in winter, 600 sheep in summer, and 900 in winter. Rye, oat, and rape straw are alone used on the farm; all the wheat straw is sold. For the last two years M. Thomassin has bought the mud-sweepings from the streets of Paris, 1,000 tons of which are delivered to him by rail yearly. From 1862 to 1870 he purchased annually 25 to 30 tons of guano, and as many of rape-cake; but latterly, since chemical manures have been more thoroughly understood, he has ceased to buy guano, and replaces it by a mixture of nitrate of soda, superphosphate, and sulphate of ammonia. Under this management, or in consequence of favourable seasons, the yield of wheat has increased during the last five years four bushels per acre, and beet nearly three tons. Seasons may have affected this yield, but the judges decidedly attribute it to the rational method of providing suitable nourishment for the crops.

Farms. Puiseux.

Chemical Manures.

When farmyard manure alone is used it is impossible to judge clearly what is the influence of each of its constituents upon any crop; it seems to fulfil every

Farms. Puiseux. requirement, but completely satisfies none. Guano and similar manures are not always satisfactory—indeed, sometimes they are disastrous. Chemical analysis has rendered immense service to farming, and thrown clear light upon the question of the proper food to be supplied to crops, and for the last ten years commercial manures, received at first with justifiable mistrust, have been a precious resource for the farmers. The composition of plants is now understood, the elements necessary to their existence are known.

So far so good, but farmers are yet only feeling their way. Exceptionally large crops of sixty bushels of wheat to the acre, ordinary ones of thirty-two, and bad ones of fifteen, are not accounted for; two samples yielding the same crop will be differently composed. The truth will eventually be reached, but it is a serious labour. Agricultural laboratories, "stations agronomiques," will solve the question, but they must be assisted by farmers sending specimens of any especially abundant crops, which should be taken at the moment of flowering. In spite of this incompleteness of knowledge, chemical manures produce very satisfactory results, and are bought by farmers with daily increasing favour.

For this season's crops M. Thomassin used twenty tons of cake, ten tons of sulphate of ammonia, ten tons of nitrate of soda, and thirty tons of superphosphate; 100 cubic yards of lime mixed with 400 cubic yards of road-scrapings are used on thirty acres of lucerne. The result of this care is shown in the produce: wheat has averaged the last five years thirty-five bushels to the

acre, oats fifty-seven bushels, rape thirty-three, and beet twenty-two tons. The capital engaged is £16 per acre, which does not include outlay on permanent improvements. On the 675 acres there are four full sets of farm-buildings. The stables and out-buildings of the château are converted into twenty-five houses for the married labourers. These particulars are abridged from the report of the judges who had to decide upon the prize for high farming in the department in 1877, which was given unanimously to M. Thomassin. The report goes much more into detail, particularly in the scientific part, and is a specimen of what goes on each year in every department of France. Farms. Puiseux.]

The rents of medium-sized farms run from 30s. to 40s. per acre, very rarely reaching the latter sum, except when close to a town. The neighbourhood of Coulommiers seems to be the centre of farms of this class, and the average capital is about £8 per acre. Horses alone are used, and upon a farm of 250 acres, requiring six, there will probably be eight, as the farmer will undertake contract-work upon larger holdings. There will be twenty cows used for cheese-making, which, being well fed, are ready for the butcher when off their milk, and sell without loss; seven pigs fed with whey from the dairy, and consumed at the farm; and three hundred sheep. The implements on a farm of this size are seldom of a good sort. Horse-rakes are seen occasionally, but mowing or reaping machines rarely. Threshing-machines are common, and Medium Farms.

Medium Farms. moved by horse-power. The work is done by two carters, a cowman, a yardman, and one female servant; haymaking and harvest-work by extra hands, usually Belgians. Wheat, oats, artificial grasses, some mangolds and carrots for the dairy cows, are the only crops grown; the wheat seldom yields more than two quarters and a half to the acre; green fodder is produced considerably beyond the wants of the farm, and is sold in Paris; lucerne particularly sells well, and the leases are very easy as to the sale of straw off the farm, all through Brie, so much manure being brought from Paris. The produce of such a farm may be thus estimated:—

Wheat, £440; oats, £160; roots and green fodder, £225; making a total of £825 for vegetable produce. Cheese, £400; calves, £20; sheep, £125; pigs, £20; a total of £565 for animal produce, or a gross return of £1,390, about £13 13s. per acre.

Small Farms. The holders of smaller farms cannot grow corn or make cheeses; but they keep cows, and use the milk for Calves. fattening calves, which they buy from their larger neighbours when they are a week old. With six or seven cows, twenty fat calves can be prepared for market in the year. The flesh can only be kept white by the calves being fed upon nothing but milk, of which they take about six quarts a day the first few days; and they are muzzled to prevent their eating anything else, and are kept in a stable darkened and comfortably warm. At the end of a couple of months many rearers give them from two to six eggs a day each, when they are about ready for

market, and they will then weigh from 250 lbs. to 350 lbs. each. Nowhere is the veal so good as that produced by this method. It was introduced into France by Cardinal Mazarin, who had a dairy-farm at Vincennes, and reared calves upon milk according to the Roman fashion. Coulommiers, Nangis, and Montereau send annually nearly 30,000 fat calves to the Paris market. These small farmers also occupy themselves much with rearing and fattening poultry, especially about Meaux and Provins. Calves.

Still lower in the scale of holdings, as judged by their size, but not lower as judged by their produce, are those which are cultivated as garden-ground. At Etampes there are 750 acres cultivated by 1,200 people, gardeners and their families. Each acre gives an annual produce of more than £65; so that from these gardens there is sold annually a value of nearly £50,000, in artichokes, cauliflowers, salads, gourds, strawberries, &c. At Argenteuil, where the land is cut up into portions of incredible exiguity, there are less than 20,000 acres in the whole canton; it comprises much land occupied by fair-sized holdings, and yet there are as many as 30,000 distinct properties in the place. It is here that is continued that remnant of the vine cultivation which used to be extensive round Paris, before prompt and cheap conveyance brought better wines at less money from a distance; and this is the nursery where is reared that kind of asparagus producing those monstrous heads, more astonishing to the eye than pleasing to the palate, Market Gardens.

Market Gardens.

the taste for which, however, is declining, as people are beginning to prefer vegetables with some flavour in them. The growth of asparagus is very extensive in France: near Orleans there are 7,000 acres among the vines; hundreds of acres, reclaimed from the sea in the Bay of Cancale, in Normandy, grow asparagus almost naturally; but the plants for this land come chiefly from Argenteuil, and a large business is done in supplying sets to all parts of Europe, as well as in growing it for the ordinary markets.

Sheep.

Brie has always been a large sheep-feeding country, but, in common with the rest of France, there is a considerable reduction. In 1857 the number returned for Seine-et-Marne was 667,448; in 1862 it was 704,277; in 1866 it was only 640,622; and in 1872 it had fallen to 474,896, rising again in 1873 to 581,910. The return of 1862 may be left out of consideration, for according to the best opinions it deserves none. That of 1872 was no doubt largely influenced by the Prussian invasion; but the returns of 1866 and 1873 both show a diminution, which has probably continued, as the returns of 1872, from departments not influenced by the invasion, also show a decline. The decrease can be accounted for by the fall in the value of wool from the merinos, since the great increase in the supply from Australia; and there may be a recovery, as meat has risen in price; or if not a recovery in number, there will be more meat from the same quantity of sheep, the cross of Leicesters with

A FLOCK OF SHEEP IN BRIE.

merinos finding favour on the rich lands in Brie. A very large portion of the sheep produce, however, is wholly independent of the sort, as so many farmers only buy sheep to put up to fat for a short time during the pulping season. They find at the fairs a supply of sheep from all quarters—small Berrichons from the centre; merinos, pure and crossed, from Champagne; little forest sheep from the Ardennes; Barbary breeds from Provence and Algiers; German sheep from over the Rhine; and they take whatever they consider comes cheapest, there being as good a probability of profit from a small light animal costing only a trifle as from one of much better frame, but which would involve a larger outlay for first cost. Upon the whole, it must not be forgotten that the weight has increased in all these breeds, and a sheep now means much more meat than a sheep did twenty years ago. Sheep.

Seine-et-Oise is the French nursery of the merino, that breed of sheep which has spread over the greater part of France wherever the land is good enough to support them, and from France has extended to our English colonies. Brought from Spain in 1786, and established at Rambouillet, it was not until 1815 that the breed was so improved as to be accepted by the French farmers. For a number of years improvement was continued in the direction of wool-production, but with the almost total sacrifice of meat. Latterly, judicious selection, and crossing with English breeds, have tended to make the merino, if not a good meat-producer, yet a much more abundant one than formerly,

Sheep. while it retains the superiority in its wool; and the problem of getting an animal that will give wool and meat—sufficient of both in quantity and quality to make the most profitable race for the French farmer—seems likely to be solved by the general adoption of the improved or crossed merino. The Rambouillet flock—the result of a century of thought and care—was saved during the occupation of France by the Germans, by the energy of the head shepherd, Rougeoreille, who started with it on foot on the approach of the Prussians, and took it safely into Brittany. (See page 115.)

Cattle. It is only recently that Brie has become an important cattle-feeding country; fat stock, a "necessary evil" elsewhere in France—necessary because manure could not be had without it, and an evil because it absorbed capital without itself giving any profit—was not necessary near Paris, the great towns supplying all the manure wanted, in return for the straw and fodder sold; and many large farms never had a head of horned cattle upon them from year's end to year's end. The system is now far from extinct, and an example has been given (page 404) of a most highly-cultivated farm of more than 1,000 acres, on which the cattle consisted of a single milch cow. The staple of Brie farming was corn, wool, green fodder, and on the smaller holdings, dairy produce. Since the introduction of beet, the increased value of meat, the decrease in the price of wool, and the power of getting milk from long distances, a great change has been made. Cattle and sheep are

BRIE SHEEP DOGS.

now fatted on pulp; and with the cattle, as with the sheep, the choice of the breed is subordinate to the price. Anything that costs a moderate price, and which is likely to improve sufficiently quick in the stalls to pay a profit, is bought at the fairs; so that there is no distinct breed in the country. Nearly all the ordinary farm-work is done by horses, but the beet-cultivation requires deep ploughing, best done by oxen; and during the preparation of the land in spring, and the carting of the roots to the distillery in autumn, there is an extra press of business, for which working-oxen are bought; and as this extra work is completed, they are put up and fatted. Twenty years ago working-oxen were unknown, now they are largely used; but the main stock of cattle still consists of dairy-cows for milk-supply and cheese-making. Out of 167,888 head of cattle returned in the two departments in 1873, 123,651 were cows, only 2,400 bullocks. But this return may very well not represent the state of the stock truly, as during the height of the work connected with beet, and during the pulping season, the number would be greatly larger than during summer; the sheds may be filled two or three times in the course of the year, and many farms may have forty to a hundred oxen from September to April, and perhaps none from May to August. The fatting of stock on these farms is so purely a matter of immediate profit and loss, that unless the profit is tolerably certain, the business is dropped for a time, and the pulp is stored away in pits, to be brought out at a future period, when prospects Cattle.

Cattle. are more encouraging. Upon a farm in Seine-et-Oise, in the spring of 1876, of 1,000 acres, where 1,200 sheep are usually fed, there was not a single head, and only sixty cattle, instead of two or three hundred. Straw was dear, and store-stock was dear; and it was safer to sell the straw off the farm in Paris, and bring back manure.

The working-oxen are bought of the Charolais, Parthenay, Limousin, or Salers breed; those for supplying milk, of the Flemish; and those for making cheeses, of the Norman; and those for fatting, of any breed that comes to hand. The larger farmers are discontinuing milk-produce, cheese-making, and the fattening of calves, finding a better occupation for their highly-rented lands in attending to the growth of beef and mutton, and in distilling. The change is indicated by the returns of the cattle: for whereas the total stock in the two departments was 162,176 in 1866, it was 158,551 in 1872, a diminution of only 3,625, while the cows had decreased from 133,217 to 118,187, a diminution of more than 15,000; the calves in 1866 were 16,349, in 1872 only 14,215; in the same periods the young stock had increased from 8,690 in 1866 to 20,739 in 1872.

Cheese. It is by its cheeses that Brie is best known, and they are made upon all the medium-sized farms, and still upon some of the larger ones. They bring in very useful ready money, upon which the farmer depends for his weekly outgoings. At some of the farms a kind of soft cheese is made, at a time when milk

is abundant, for immediate use. M. Decauville, for instance, turns out in the summer 300 to 350 cheeses daily, which are really not much more than curds, and which sell some at 3d., and some at 1d. each. Cheese.

The chief business, however, is in the ordinary and well-known Brie cheese, weighing about one pound, and to make which about three quarts of milk are used. It sells at from 1s. to 1s. 3d. per pound wholesale.

The cheese production in Seine-et-Marne amounted in 1873 to a total of very close upon £400,000, of which £116,000 worth was made at Coulommiers, £50,000 at Provins, £162,000 at Meaux, £32,000 at Fontainebleau, and £25,000 at Melun. Meaux is the great market for the supply of Paris, and presents a curious sight on market-days, from the great piles of cheeses on sale; £4,000 worth are often sold on a single market-day. That made at Coulommiers differs from the ordinary Brie, and retains its own distinctive name. There is also another cheese made from much richer milk than the common Brie: it is thicker, of finer flavour, and keeps much longer; it does not, however, enter into general consumption, the price by retail being more than 2s. per pound.

The manufacture of the Brie and Coulommiers cheese is far from being confined to the country of its origin, Seine-et-Marne; a large quantity is made in the neighbouring departments. The second prize for Brie cheese at the Paris show in February, 1873, was won by a maker from Seine-et-Oise, and the first prize for Coulommiers went to the department of La Meuse.

Potatoes.

Potatoes are largely grown in Seine-et-Oise, and are used in manufactures, sugar, syrup, and starch being made from them. There having been some idea that the yield was decreasing, M. Dailly, who farms about 900 acres of his own land, not far from Paris, an estate owned and farmed also by his father, and who has always from 50 to 100 acres under potatoes, has produced the following statement from his books :—

	Tons.	cwts.	qrs.	lbs.		£ s. d.
From 1833 to 1842 the average yield per acre per annum was	7	1	1	7...	Average return	8 12 0
From 1843 to 1852 ditto ...	6	1	2	13...	„	8 0 0
From 1853 to 1862 ditto ...	5	3	3	17...	„	9 3 0
From 1863 to 1872 ditto ...	9	16	1	17...	„	12 8 0

The disease decreased the yield per acre between 1853 and 1862, but increased the money produce. Since the disease has disappeared, both the yield per acre and the amount in money have sensibly increased.

Lucerne.

Lucerne, however, has really decreased, the produce being :—

	Bundles per Acre, of 12 lbs. each.	Cwts. per Acre.	Money yield per Acre.	Price per 100 Bundles.
From 1833 to 1842 ...	565 ...	62 ...	£11 6 0 ...	£2 0 0
„ 1843 to 1852 ...	560 ...	60 ...	8 13 0 ...	1 11 0
„ 1853 to 1862 ...	528 ...	56·2 ...	9 15 0 ...	1 17 0
„ 1863 to 1872 ...	477 ...	51 ...	8 16 0 ...	1 17 0

FRANCHE COMTÉ.

"To Orechamp, from Besançon, the country is bold and rocky, with fine woods, and yet it is not agreeable; it is like many men that have estimable points in their character, and yet we cannot love them.

"Poorly cultivated, too."—ARTHUR YOUNG, 1789.

"Franche Comté is Switzerland, with its thousand varied beauties, now graceful, now sublime; nothing is wanting but the eternal snows. Two things explain the agricultural development which has forced its way through the asperity of the climate: one the soil, a mixture of clay and limestone, which has received from Humboldt the name of "jurassic;" and the other the extent of natural grass, caused by the abundance of water. While in Champagne and Burgundy the twentieth part of the land only is under grass, here it is a sixth; this happy proportion tells its own tale."—LOUIS DE LAVERGNE.

Franche Comté.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods	Horses.	Cattle	Sheep.	Pigs.
Jura	283,247	1,248,502	423,662	244,215	71,467	366,835	15,836	155,220	35,255	49,039
Doubs	283,138	1,306,887	505,487	395,732	21,292	268,480	20,455	127,528	64,359	31,359
Haute Sâone...	300,088	1,379,145	672,610	179,067	32,445	380,390	22,618	144,155	87,449	69,430
	866,473	3,934,534	1,601,759	819,014	125,204	1,015,675	58,901	426,903	187,063	149,828

	Population.	
	Collected.	Scattered.
Jura	229,723	53,524
Doubs	240,297	42,841
Haute Sâone ...	251,399	48,689
	721,419	145,054

	Corn Crops in Acres. Returns, 1876.
Wheat...	428,067
Mixed	43,195
Rye	42,477
Barley...	73,060
Buckwheat... ...	18,962
Oats	266,377
	872,108
Potatoes	110,902

Population per square mile.

Franche Comté ...	144
France...	175

Franche Comté ...	23·62 urban	...	76·38 rural
France...	31·06 „	...	68·94 „

Decrease of population from 1866 to 1872.

Franche Comté ...	3·70
France...	1·29

Proportion of population who can neither read nor write, above six years old.

Jura	9·3,	fourth in instruction in France.
Doubs	6·9,	first „ „
Haute Sâone ...	11·9,	ninth „ „

Franche Comté is half covered by the Jura mountains and their spurs, running the whole length of the province, a distance of nearly 150 miles. Steep on the side overlooking Switzerland, these mountains shelve off on the French side in various parallel ranges gradually lessening in height. In some places as many as nine distinct ranges can be traced, but four are chiefly noted: the first and principal one rises in various points to 4,000 and 5,000 feet; the second to 3,000 and 3,500 feet; the third to 2,500 and 3,000; the last to 2,500 and 1,500. Between these ranges there are bleak and monotonous plains, wet and marshy, with beds of peat and much pasture-land. On the higher levels are forests of pine; on the lower, of oak, beech, and birch. The pines are among the finest timber-trees in Europe; those placed among the first class are ninety feet high and a yard in diameter at six feet from the ground, and the best of them sell for £10 and £12 on the spot. One-fourth of Franche Comté is covered with forest.

It is a country of many lakes, springs, and streams. Some lakes are long and narrow, formed by the heading back of the waters of the rivers, and these lakes are shallow; others are round, filling up the funnel-shaped abrasion worn in the soft limestone rocks, "combes" as they are called in the country; others again are bounded by steep cliffs, which leave no room for traffic round the margins. The springs issue from deep caverns, in many cases they are only the re-appearance of rivers which have sunk through faults in the structure of the soil,

and they are of strength to turn the wheels of large mills: some give regularly twenty-five gallons per second; others, after much rain—or at all events one other—is said to vomit forth as much as a hundred cubic yards in the same time. The streams rush in deep gorges and defiles worn through the soft rocks, losing themselves sometimes in summer in the fissures or under masses of rock, re-appearing in a full volume. The water-power is utilised by many mills, and waterfalls abound. One, on the Ain, is fifty feet high and 400 feet broad; another, on the Doubs, is eighty feet high. The soil thus corroded and eaten away gives great variety to the scenery, the waters are bright and pure, not thick and cloudy with snow-water as in Switzerland; indeed, it is Switzerland without the crowds of tourists and beggars, with homely inns instead of grand hotels, and with a charm of its own in the quietude of its deep forests and green meadows.

The north of Franche Comté contains the southern part of the granite mountains of the Vosges, where all the valleys are alike, consisting of meadows watered by clear torrents dashing from saw-mill to saw-mill. Above the meadows there is some cultivation, then comes the sombre forest with its rocks and cascades, higher still are the cold and desert plains and bare peaks.

The soil of the main part of Franche Comté is the jurassic limestone, abounding in fossils and with banks of coralline formation, the richest of all soils, and its richness is shown in its 100,000 acres of vineyards and its growth of tobacco and maize.

No general statement of the climate of such a country would give a true idea of what it is. It varies in every village, from the higher plains, where there are eight months of winter with thirty feet of snow, to the region of maize and the vine. The yearly rainfall reaches in many places to as much as sixty inches. The river Ain receives more supply of direct rain than any river in France of its extent. The lower part of the province is the outlet for the waters of the mountains, and the outlet is often insufficient. Vesoul, the capital of Haute Sâone, is often under water, and the grass-lands in the valley are flooded one year in three. Some of the highest permanently-inhabited spots in Europe are in Franche Comté, and there are few towns of the size of Pontarlier, with its 5,000 inhabitants, so highly placed, it being over 2,500 feet above the level of the sea. Other towns and villages range from 600 to 1,500 feet; Besançon, the capital, is 700 feet. Climate.

Franche Comté is well populated, having 144 inhabitants to the square mile, though nearly half the country is waste and forest. Twenty-three per cent. are classed as urban and seventy-six and a half as rural; but though three-fourths of the people use land, they are engaged in manufactures at their homes; they are not scattered about as are the inhabitants of other country districts; 720,000 live in towns or large villages, and only 145,000 are isolated. There always was a greater power of self-government here than elsewhere in France: the name of the province sufficiently indicates Population.

Population. this. It reverted to the Empire of Germany on the death of Charles the Bold, and even when seized by Louis XIV. retained many of its privileges. During the middle ages Pontarlier was the seat of an independent confederation. Though the province was about the most lightly taxed in France, it supported the Revolution very warmly, but when Lons le Saulnier tried to give itself, in 1793, an administration independent of the central authority, or probably only wished to maintain or enlarge local liberties already possessed, it promptly found that the Republic was to be "one and indivisible."

There is a considerable leaven of Protestantism in the province. Doubs, out of a total population of 283,000, has 33,000 Protestants; only five departments have more. There are 6,500 inhabitants in the town of Montbeliard, of whom only 1,200 are Roman Catholic; the others are chiefly Anabaptists, or Protestants of the Augsburg confession.

The Franche Comtois have the reputation of being a steady, thoughtful race of people, much given to hard study, to which the long winter evenings are devoted. It is said that they send up more pupils to the Polytechnic school at Paris than any other province; and their judgment is thought so highly of, that "the opinion formed in the Jura to-day will be the opinion of all France a month afterwards."

But living is very hard in this cold country, and the inhabitants possess those qualities that make them valued elsewhere. Between the census of 1866 and that of 1872 the population diminished nearly 4 per

cent., though families are large. The people emigrate, not in masses, at one time of the year, to return in another, as in Auvergne and Limousin, but individually; and Comtois are to be found in situations of trust in every town of note in France. It seems always to have been so. When the country belonged to Spain the Comtois spread themselves over the vast empire belonging to Charles V. Twenty thousand were to be found in Madrid, and as many in the Milanais; 12,000 were in Rome, where the quarter they occupied was called "Little Burgundy." Cardinal Granvelle, the minister of Charles V. and Philip II., was a Comtois. Population.

The people rank as well physically as they do intellectually. The standard for the army under the old form of conscription was five feet seven inches; the highest in France; and out of 1,000 drawn only twenty-four in Doubs and thirty-two in Jura were rejected for not coming up to this minimum. This places Franche Comté first among the provinces of France for stature; at least, Doubs is first among the departments, and Jura third, the adjoining department of Côte d'Or being second, but only a trifle above Jura. This corner of France seems to contain the biggest men in the country, the three departments above named and Aisne being the four highest in the list. Flanders, Artois, and Picardy come next, with thirty-seven in the 1,000 rejected at the same standard; whereas, by contrast, in Limousin about 170 out of every 1,000 were rejected for not reaching the low minimum of five feet four inches.

Population.

The true Comtois, found chiefly on the high table-land of the Jura, are short in the body, but long in the leg, with broad shoulders and muscular arms. In the Middle Ages they hired themselves out as men-at-arms (*gens d'armes*) to the municipalities of Italy, whose inhabitants, unused to fighting on horseback, could not without some such help, have maintained their freedom against the nobles. They usually left their country after the harvest, and returned in time for the harvest of the following year, or before the heats of summer rendered fighting in heavy armour next to impossible in Italy. They were just the men to swing a mace or wield a two-handed sword. Some remained with the free companies permanently; and a contingent of them joined the Crusade of the thirteenth century, and on the fall of Constantinople, in 1205, founded, under one of their leaders, the Count of Champlitte, the duchy of Athens.

Education.

Such a people must be well educated, and no province equals Franche Comté in this respect. Doubs heads all France, with less than 7 per cent. of its inhabitants over six years old unable to read and write; Jura is fourth, with rather more than 9 per cent.; Haute Saône ninth, with 12 per cent; the other highly-educated departments, with 10 per cent. and less, are all adjoining Franche Comté. What a contrast to Brittany, Berri, and Limousin, where more than half the people of a teachable age can neither read nor write! These people in the Jura are not only very well

educated, but they know how to make use of their knowledge; and, as an instance, on Sunday afternoons in summer lecturers attend the villages, and having read a paper on some farming subject applicable to the neighbourhood, a discussion takes place with the practical farmers. These itinerant lectures are very well attended. Education.

In the region of maize and the vine the land is of great value, and many of the peasant farmers are rich, holding estates worth from £1,000 up to £4,000; not in all cases having a great extent of property to show for this value, but making it bring in a good income by their incessant and intelligent labour. Arable land is worth here £60 per acre, and vineyards from £30 up to £200. This high value is maintained because those who wish to have land in this district must buy it, and if they cannot pay for it they must, and do, borrow. Those who have money cannot invest it in land to let it so as to pay anything like a fair return, they are always largely outbid by those who mean to work the land themselves; they have, however, their compensation in lending their money at good interest on mortgage, and the interest is paid with great punctuality. The title-deeds of very much of the land in Franche Comté are in the strong boxes of local capitalists, and the landowners are largely in debt, but they are not, therefore, more involved than are the subscribers to building and land societies in England, and the debts decrease yearly. Farming.

The farms are very small, so small that it is evident

Farming. much of the earnings of a family must come from the manufacturing work done at home by some of the members. There are 92,000 holdings, of which 50,000 are under twelve acres, and not 800 of 100 acres and over, in the whole of the province. Farm-labourers seem hardly to exist, as only 2,000 are returned, male and female. This account, no doubt fairly enough represents the state of the farming in the lower and richer districts of the country, where the climate is warmer, but in the higher districts each village has an important quantity of common land, which allows some stock to be kept, but which does not count in the individual holding. There are also many villages which appear to have made some appropriation of the common land, as each household has an almost equal portion. Here the pastures are improved by proper manuring, and, indeed, are now very generally ceasing to be pastures, as the cattle are kept at home, and the grass is cut and brought to them. These villages seem to form even now so many small republics, and no doubt before the consolidation of France into one country they were really quite independent of outside control.

Down in the plain wheat grows well, the yield being commonly four, and sometimes up to seven quarters to the acre; but in the higher regions it falls, in some cases, as low as ten bushels, and there, undoubtedly, the growth is unprofitable. Four to six bullocks must be kept to do the work on a farm of 80 to 120 acres, a large farm, and all the crops, wheat, oats, and potatoes put together fall much below the produce that could be

obtained from cows if it were all grass, and the great labour of ploughing, sowing, and harvesting would be saved. The bullocks when not engaged on the farm are employed in carting timber, but their additional earnings do not compensate for the loss of the produce of the cows. Wherever arable farming and carting have been given up, and the land turned to grass, there wealth has increased, wherever arable culture and carting continue, there the people remain poor. Farming.

The crop that brings in most money in the rich plain is that from the vineyards, but the special production of the Jura is Gruyère cheese. It is this which brings comfort to a district in which, until its extension, the people were sunk in misery.

The stock is of the breed called the "femiline," good as a worker, good as a milker, and fairly good for the butcher; but, like all breeds that have this character, not specially good in either capacity. It is, perhaps, best as a milker, and now that milk-production is so largely extending, it will, no doubt, improve as care is taken to develop this faculty. The breed is sufficiently good to be improved without the introduction of a cross, and it is acclimatised to the country. The cows now yield from fourteen to twenty-one pints per day, after calving, but the best give from thirty to forty, and there is no reason why all should not increase up to this amount, as the grass becomes better managed, more amply manured, and as more clover is grown, and when the cattle themselves receive more attention. Cattle

Cattle. The show at Vesoul (1877) evidenced clearly enough what might be done by proper selection. The fifty-five males and sixty females showed a marked superiority over those met with generally through the country, but the shorthorn crosses were a failure; the native breed must become better than it is before the shorthorn can be advantageously used.

Cheese. As the cheeses weigh three-quarters of a hundredweight, and are as big round as a cart-wheel, the milk from many cows is required to make one. No farmer has sufficient milk at one time, few indeed having as many as three cows, and it takes 300 quarts to make a cheese. The inhabitants of the village therefore unite, and each sends in what quantity he can to the general factory. The amount he sends is put to his credit, and on the balance of the sales being made up, he receives an amount of money in proportion to the quantity of milk he has supplied.

In 1854 there were 1,250 factories in the two departments of the Doubs and the Jura, producing cheese to the value of £480,000. Now (1876) the amount is quite up to £1,200,000, and the quality is considered equal to that of the Swiss Gruyère. The butter produce is equal to fully one-fourth that of cheese, in addition to it.

The system of manufacture in common is of very great antiquity, but originally was confined to the higher mountains. It has gradually spread; and now there is not a village, even down in what is called the plain, the low country, without its factory.

Taking the average through the year, five quarts of milk make one pound of cheese; but some of the milk is skimmed. The half may be skimmed during most of the year, but until the grass is abundant one-third or two-fifths ought not to be exceeded. In April it takes three and a half pints of cream to make one pound of butter, in October two and a half pints are sufficient. Butter is now making a higher value relatively than cheese, therefore in some places more cream is taken, even from as much as four-fifths of the milk. The cheese suffers materially in quality, but there is more profit to the farmers. As an instance of the improvement that can be obtained, and that may become general, Dr. Bousson gives the result of his experience when he was a dairy-farmer, and says that from 1839 to 1844, keeping from twenty-eight to twenty-nine cows, he made yearly two and a half tons of cheese; in 1846, with twenty-five cows, he made three and a half tons; and from 1847 to 1851, with only twenty-three cows, he made four tons, at each period using the same land. Cheese.

The district of Poligny, with 71,649 inhabitants, with 195 factories, made cheese, in 1875, which sold for £133,000, and butter which made nearly £40,000.

The most complete account we have of a village in the Jura is that of the village of Chamolle, which has 218 inhabitants, of whom forty-eight are shareholders in the cheese-factory, and own among them 190 cows. In 1873 they made 748 cheeses, weighing twenty-four and a half tons, which sold for £1,660. They also sold

Cheese.

butter to the amount of £414. They reared and kept eighty calves, worth 48s. each, value £192; they sold 110 calves when young, at 24s. each, for £132. The milk consumed by the inhabitants, and the whey, were certainly worth £124, making a full total of £2,522, or £2,206 in hard cash, besides the eighty calves, the household milk, and the whey. The average money yield per cow was £13 5s., but each cow gave an average of only eight and a quarter pints a day, which is certainly capable of being increased. But poor as the yield of milk was, the money yield per head was £11 10s. for each of the 218 inhabitants of Chamolle. These 190 cows certainly did not consume half the grass in the parish, as it maintained, in addition to the cows, ninety-seven bullocks, four horses, four mules, seventy-four heifers and steers—a total of 179 head of large cattle—and also sixty-eight year-old calves, fifty pigs, and ten sheep, or 128 small cattle—307 in all. If the productive value of much of this stock —say the bullocks and the horses—could be found, it would be seen that the balance of profit would go heavily in favour of getting rid of them and substituting milch-cows: the tendency is in this direction. Grass and cows will improve and increase, arable land will decrease. Up to seven or eight years ago much carting of timber was done at Chamolle, and the people were poor; this has been given up, and the people are rich. If there is a bit of land to be sold, there is not a man in the place but has money enough in his pocket to buy it.

The village of Chésy is a similar example. There are 160 inhabitants, and they also have given up carting timber and taken to dairy-farming and growing artificial grass. They made twenty-five tons of cheese last year (1875), and are also growing rich. Cheese.

It is a small factory which works up the milk of forty or sixty cows, and the small ones do not pay as well as the larger ones, because they cannot keep up the supply for every day in the year as can those factories which are fed by the milk from 100 or 200 cows. The return in money seems meagre, being less than 1½d. per quart; and if butter continues to bear the price it does now, and cheese keeps as low, there may be a change in the staple farming commodity of Jura, and butter may be made instead of cheese. The cattle of Doubs and Jura do not meet with ready sale outside their own localities, but Haute Sâone sells yearly about 6,000 head for fattening in the north, and here the shorthorn cross is admitted, and indeed becoming common.

The pastures in the higher levels are managed differently from those in districts which are habitable all the year round; being 3,000 feet and more above the sea-level, there is food only from June to October, and they are let usually to a Swiss cheese-maker, who brings some cows with him, and hires others from the villages round the foot of the mountain. The cows are out-of-doors the whole time the season lasts, and the cheese-maker lives and makes his cheeses as best he can in a hut.

Manufactures.

The manufactures of Franche Comté are chiefly those connected with clock and watch making, wire, bells, toys moved by clockwork; in some parts a great trade is done in polishing stones: at one village, Septmoncel, the weekly wages earned in this trade approach £200; and much iron is smelted with charcoal. In the forest districts are made household utensils of wood, saddlers' joinery, dressmakers' boxes, school rulers, brushes, snuff-boxes, chaplets, pipes, buttons, &c., all such things as can be worked at home when the people are shut up by the snow. At Morez, 400,000 dozens of spectacle-glasses are made yearly, and 30,000 roasting-jacks. The principal manufacture is that of watches: in 1875, 419,984 watches were made in the Jura, and only 2,050 in all the rest of France; 49,997 were imported. The machine-made American watches threaten seriously to interfere with this business. A workman by hand turns out 40 watches in a year; by machinery one man can turn out 150, and each part is so exactly made that any one can be forwarded by a simple order on a post-card, with a certainty of its fitting the others. There is an import duty on watches in America to the amount of 25 per cent., but in spite of that America has hitherto been the best customer of Switzerland for watches. The trade is now lost, and the number sent has fallen from 366,000 in 1872 to 76,000 in 1876. France has not been so dependent on America as Switzerland, but other markets are likely to be supplied by the Americans to the exclusion of the French.

On the visit of Marshal MacMahon to Besançon, in

September, 1876, a microscopic watch was presented to Madame McMahon by the Watchmakers' School. It was so small that to tell the hour a glass of high magnifying power is required. The Duc d'Aumale was present when this fairy jewel was handed to the Marshal, and he related how his ancestor, the Duc de Penthièvre, wore watches in his vest buttons. Moved by this family souvenir to give a fillip to Besançon trade, his highness ordered a set of lilliputian chronometers for shirt and wrist studs, which will be ready in time for the Exhibition in 1878. (See *Times*, September 15, 1876.) The watches worn by the Duke's ancestor were not made at Besançon, as watch-making was only introduced into the Jura from Switzerland in 1794. Manufactures.

Growing timber is not farming, and if it were, there would be nothing to say about it, as forests are more cut down than planted; but the existence of timber in Franche Comté influences farming very much. The State owns 100,000 acres of productive forest in the Vosges, and 30,000 in the Jura. Various parishes own 125,000 in the Jura, and 50,000 in the Vosges. The town of Remiremont sold its cut of fir timber in 1875 for £3,400; in 1869, the same quantity (3,300 cubic yards) made only £2,000; and in 1830, only £1,000. In 1810, trees were sold for 10s. and 12s.; the same-sized trees would now make £12. The trees that are classed as large timber are 100 feet high, and have a diameter of from 27 inches to 35 inches at six feet from the ground. A tree of 23 inches diameter is worth £4; Forests.

Forests. one of 27 inches £6. The best forest of silver fir is near Morteau, not far from the waterfall of the Doubs, and is, indeed, the finest in France; the trees are probably 150 years old. The finest pine-forests are those of Arc, and Maublin in the Jura, near Levier.

Dombes.—Pond-arming. Outside Franche Comté, but connected with it by its two rivers, the Sâone and the Ain, is the very curious district, the old principality of the Dombes, about 180,000 acres, so covered with ponds, chiefly artificial, that on the map there seems to be more water than dry land. This system has long been part of the regular routine of farming. The ponds are kept in water for three or four years, and are stocked with fish, bought when two or three years old from dealers who make a business of rearing young fish for sale. The water is easily drawn off—the sluice-gates have only to be raised, and, as the whole country is on a slope, it runs away naturally. The pond land is dried by open drains, and ploughed, and is kept under cultivation for three or four years, during which time it produces abundant crops, without any addition of manure. The first year it is apt to be found too rich, and produces more straw than grain. Where it is strong, wheat is sown the first year, and oats for the next two in succession; where the land is less strong, only oats and barley are sown. When water cultivation is not recurred to, these drained ponds form good natural pastures, and, indeed, they at all times are the only spots where good crops can be seen in the country, all elsewhere being poor and miserable; no wonder, then, that the inhabitants

cling to them in spite of their unhealthiness, and in spite of repeated decisions that such a system should be discontinued. They are, however, disappearing gradually, but difficulties are met with, as there is sometimes a joint ownership, one person owning the land, and another having the right of rearing fish. A company, assisted by a contribution from the State, has drained within the last ten years 15,000 acres of ponds. The work has been done without difficulty, but with irregular success as regards profit in individual cases; and upon the whole there has been, in consequence of the operations, a decrease in the yield of farming produce. The use of green forage and the increase of stock are, however, rapidly bringing up the produce to a level with its value before the drainage, and with a clear and important improvement in the public health. There are 30,000 more acres to be drained, and the marsh fevers retire slowly before the progress made. Pond-farming.

The operation requires to be carefully performed, the drainage must not bear too large a proportion to the extent of the farm, or the farmer could not bear the cost. In draining a pond of moderate size, say of forty acres, which under the pond system would bring in an annual rental of 20s. per acre, there is an immediate loss of quite a third in the produce, besides a great increase in the cost of management, and for lime, new buildings, implements, stock, &c.; and the farmer will lose a crop of oats which was nearly all profit. In the end there will be an advantage; but, in the meantime, heavy sacrifices must be made. Some of the largest ponds ought

to remain ; they give a good return, they will be useful for irrigation, and they are not so clearly dangerous to health as the smaller ones which, alternately dry and under water, influence more nearly the population.

CHAMPAGNE.

"ALL the products I see are miserably poor, yet the soil is a good loam; much is left waste to weeds, not being deemed worth sowing, that would yield sainfoin worth three guineas an acre.

"The prominent feature of Champagne is chalk; in great tracts it is thin and poor. The southern part, as from Chalons to Troyes, &c., has, from its poverty, acquired the name of *pouilleux*, or lousy. The appropriating such land to sainfoin is little known here."—ARTHUR YOUNG, 1788.

"Although still one of the least populous provinces of France, its prosperity exceeds what might be expected from its natural sterility. This is owing to its manufactures, which employ half the population; the other half attends to farming, and produces a result remarkable for such a soil. With the help of plantations of firs and sheep, these wretched plains are becoming wholly changed. Artificial grasses, such as sainfoin, are increasingly used, and root-cultivation is making good progress."—LEONCE DE LAVERGNE, 1866.

Champagne.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
Marne	382,195	2,045,110	1,464,110	88,887	43,577	287,007	50,382	110,752	503,651	86,151
Aube	251,595	1,500,345	910,090	98,285	31,855	262,152	28,889	87,263	251,455	28,524
	633,790	3,545,455	2,374,200	187,182	75,432	549,159	79,271	198,015	755,106	114,675

	Population.	
	Collected.	Scattered.
Marne	346,876	35,319
Aube	225,969	25,626
	572,845	60,945

	Corn Crops in Acres. Returns, 1876.
Wheat...	404,305
Mixed	9,677
Rye	233,717
Barley...	130,472
Buckwheat... ...	14,945
Oats	468,792
	1,261,908
Potatoes	45,815

Population per square mile.

Champagne ...	115
France...	175

Champagne ...	29·66 urban	... 70·34 rural
France...	31·06 „	... 68·94 „

Decrease of population between 1866 and 1872.

Champagne ...	1·45 per cent.
France...	1·29 „

Proportion of population who can neither read nor write, above six years old.

Champagne ...	12·1 per cent.
France...	30·8 „

As monotonous as Beauce, without its fertility; as sparsely populated as Berri, without its interest and charm, the largest portion of Champagne consists of vast bald plains of dusty chalk. Plantations of firs, made during recent years, affording shelter from bleak winds, and furnishing some nourishment to the ground, are slowly improving the character of the soil. Of natural grass there is none; the growth of such artificial grasses as can flourish upon almost pure chalk—such as sainfoin—is extending, and, with the assistance of sheep, cultivation is carried on; but it wants the main basis of all cultivation—a soil from which considerably more can be got out than is put in; and Champagne is too niggardly in its rewards for the labour bestowed upon it. The labour, however, is so intense, that the results are remarkable considering the poverty of the instrument. Soil.

The benefit to this country from the system of plantations of firs may be judged to be great, from the advantage that has resulted to those who devised it, and have carried it out. Two brothers began some years ago to buy land, and to plant it with belts of firs, selling it when improved, and buying other land to be treated in the same way. They are said to have realised a fortune of over £100,000 by this process, and their country has benefited still more largely. The tree used was the Austrian pine. Plantations.

The valleys of the Marne, the Seine, the Aube, and Valleys.

the Yonne are, of course, exceptions to this description. The cultivation and production there are the same and as good as those of any other part of France under similar conditions; and they are not typical of Champagne. The small quantity of land under vines is the only other exception to the general poverty of the country.

Properties.

There are some large properties in Champagne, but wholly in immense forests, the annual value of which is small. The land generally is divided into medium-sized and small properties; the former of these are in the main cultivated by those who own them, and estates of from 250 to 300 acres, got together by hard working and hard saving, are by no means uncommon. A large proportion of the landowners are clothworkers as well as farmers, and the rattle of the shuttle mingles with the sounds of rural life. Nowhere has the sale of large properties by division into smaller ones had more extension than in Champagne. They often sell at rates that do not pay 1 per cent. on the purchase; and much land is now worth double, treble, and even quadruple its price of forty years ago. Nowhere perhaps in France is the division of land carried to such an extent. There are here some millions of small freeholds; owners have their little estates scattered about into a score of fragments separate from each other. Such a division stops any chance of good farming, causes enormous loss of time to the workman, necessitates the faulty system of a flock of sheep in common, uniformity of cropping,

common rights of herbage, &c. The equal division of property has existed in Champagne from the earliest times. By the old law of the country—called the "Coutume de Troyes"—all property was equally divided among the children. The nobility, in quite early times, by marriage with the traders of the country, who were then merchants dealing with the chief commercial marts of Europe (Troyes, the capital, having in the thirteenth century 50,000 inhabitants), lost their position of nobles, and the whole country became strongly democratic.

Farmsteads.

The absence of farmsteads in France is very generally remarked; in Champagne there are hardly any. The cultivators live in villages often a long way apart; land, therefore, near these villages is of extravagant value; that at a distance, compelling long journeys to and from work, and requiring extra labour in cartage of manure and produce, is proportionately cheap, and is badly farmed. These villages present a curious spectacle of agricultural activity. In the morning the horn of the village shepherd summons the flock to the common pasturage, and each doorway furnishes its contingent of sheep and pigs; the cattle are taken out to the owner's plot, or to the roadside, to graze; in the evening they return in droves to drink at the public fountain. The labourers leave in the morning and return in the evening in company, it seems like one great family. At harvest-time the loaded wagons approach the village from all points of the horizon, and through the open

Farm-steads.

doorways of the barns can be seen the piles of ripened sheaves; the thumping of the flail and the humming of the threshing-machine mingling with the noise of the loom, form a strange contrast to the dreary solitude of the open country. The same scenes may be observed in towns even of some importance. This organisation is owing in some degree to the want of water through the country, but also probably to the necessities of defence, Champagne being a kind of debateable land between France and Germany.

Crops.

But though the above is a fair description of a large part of Champagne, there must be a very considerable portion of the country more productive than this would indicate. Two-thirds of the total area are arable, and of these two-thirds a sixth part, 400,000 acres, is under wheat, yielding an average of twenty-five bushels to the acre, much above the average of France; a fifth part, 500,000 acres, is under oats; rye is sown to the extent of 230,000 acres yearly; barley only to about half that quantity, but the quality of the Champagne barley is greatly esteemed. The wine produce, which has carried the name of Champagne to the remotest corners of the globe, occupies only a small area, some 100,000 acres, which yields nearly a million sterling to the farmer, and an indefinite sum to the manufacturers and dealers.

Population.

The population is small, only 115 to the square mile, and is classed as 30 per cent. urban and 70 per cent. rural, about the average of all France. Of

the total population, 634,000, only 10 per cent. is returned as living scattered, and nine-tenths as living collected together; this will be understood from what has been already said, but it would be wrong to suppose that nine-tenths of the population were townsfolk. There is in Champagne so great a mingling of country work, and such work as is usually done in manufactories, that it is not easy to calculate what proportion is employed in manufactures; probably fully one-half is so employed, but not solely. There are two towns greatly dependent upon woollen manufactures—Reims and Troyes. Reims, indeed, is one of the largest towns in France, only nine exceeding it in population: Chalons, with 17,000 inhabitants, and Epernay, with 13,000, are, with Reims, great centres of the wine-trade. The population has decreased in about the same proportion as that of the rest of France, but the department of the Marne, taken alone, shows a slight increase between the census of 1866 and that of 1872. Population.

As regards instruction, Champagne comes out well, the proportion of those over six years of age who can neither read nor write being only 12 per cent. against the average of 30 per cent. for all France. This seems to contradict the vulgar opinion as to the intelligence of the Champenois, which is expressed in a saying of a nature similar to the English one about Essex calves, "*quatre vingt dix neuf moutons et un Champenois font cent bêtes*," and with about as much truth, though probably it may have its foundation in Education.

Education. a simplicity of character which may render the Champenois more amenable to instruction than the inhabitants of some other countries. At the agricultural show at Reims, in 1876, the prizes given by M. Droche for long service in the department of the Marne were adjudged to eight labourers who had been in the same service for over fifty years; twelve to those over forty years; sixteen to those over twenty-five years. Out of these thirty-six, thirteen were shepherds.

Cattle. There is no special breed of cattle in Champagne, and the stock consists almost wholly of cows and a few bulls. They are brought from any country where the breed has a reputation for producing milk. They are Norman, Dutch, and Swiss generally, with some few shorthorns. There are now a good many of the small Breton cows, which are taking the place of goats; allowing for what the goats waste, a Breton cow can be kept as cheaply as a goat. The calves are not reared, but fatted, and the veal from Champagne has a reputation in the Paris market, which puts it on a level with the best in France. The calf as soon as it is dropped, and has been licked over by its mother, is placed in the stall where it is to remain until ready for market, and is fed from the pail from the first day. For the first fortnight it is fed three times a day, after that twice. It has as much milk as it will drink. It takes about three months to fat a calf properly, and towards the end of the process it will drink the milk of two, or even of three cows. The Champagne calves are noted for the whiteness of their flesh, which is

a great element in the value of the meat. If the veins of the mouth and the eyes are a pale pink, it is judged that the meat will be white; if red, that it will die a bad colour. The dry, sapless food from the thin chalky soil is supposed to assist in this formation of white meat. Cows fed upon more succulent grasses produce offspring more full of blood, and the milk from them would be more likely to give a redder blood to the calf. Cattle.

The cattle in Champagne are all stall-fed, and all kept for the production of milk. When not used for fatting calves, it is employed for making cheeses, of which there are three or four different kinds, having a local, and even a general reputation. The milch cows are highly fed, so that when they run dry, a very little preparation makes them fit for the butcher. It may be said that no cattle at all are reared in Champagne.

On the chalk soils of Champagne, where the land is poor, herbage scarce, and water not plentiful, sheep form the principal animal produce—the sole, indeed, as sheep alone could live upon the short spare grass. The clip of wool gives the most ready money, and the Champagne labourer is a born shepherd. The breed is here exclusively the merino. On the low lands, where the soil is damp, and therefore not suitable for the merinos pure, a cross with the Leicesters is very general; but this cross, or even that with the Southdown, is not in favour with the bulk of Champagne farmers. At a recent sale by auction after the show at Bar-sur-Aube, sixteen Sheep.

Sheep. Leicester rams were put up, but not a bid was made, and only two found buyers privately afterwards. At the fat-stock shows the merinos with a Leicester cross are largely in a majority; but a wrong inference would be drawn if it were supposed that they at all represented the character of the sheep in Champagne; the land could not support such animals, and as none could compete with the Leicester cross, none are shown. The prizes go to the same flockmasters year after year, men who farm much better land than that of Champagne generally, who can grow roots, and who farm highly. These gentlemen take great pains to improve their breed. Among the most notable are the Baron Walckenaer, at Paraclet, and the Comte de Launay, at Cléry. Their establishments, and those of some others, are very important, and though conducted with enterprise, and not restricted to the old routine, their owners do not forget that every operation ought to end in profit any more than does the smallest farmer in the province; but it is so certain that the prizes must go to these breeders that ordinary farmers do not care to exhibit, and at the shows at Reims the entries for sheep have fallen off from 359 in 1861 to 286 in 1868, and as low as 170 in 1876.

Cheese. At the extreme east of Champagne are the two large manufactories of imitation Brie cheese of Messrs. Bailleux, Adrien, & Co.—the one at Noyers and the other at Courtisols—which absorb an average of nearly 18,000 quarts of milk for every day in the year. There are others of the same kind in this part of the

country, but none so large, nor any established on so perfect a system, or with such complete appliances. Cheese.

The manufactory at Noyers is the larger of the two. The buildings cover three-quarters of an acre, and comprise fifty pig-sties, stabling for ten horses, rooms for heating the milk, a room for making the cheese which covers 400 square yards, drying-rooms, cellars, engine-room, residence, &c. There is a good garden, and a small farm of twenty-five acres.

The milk is all bought from farmers; and during the year 1873 as many as 2,123 cowkeepers, in 134 separate communes, supplied about 1,500,000 gallons of milk.

The milk is collected in tins holding, some nine, some eighteen quarts; and the collection is contracted for at the rate of one halfpenny per gallon for any distance not exceeding six miles. The contractors receive in addition as much whey as will fatten three pigs; they also make some profit on cheeses they sell in the neighbourhood, and which they can buy at cost price.

Five a.m. is the time at which the milk should arrive at the factory; and on receipt of a sufficient quantity, it is poured through a hair-sieve into two large double caldrons, the inner one of copper, the outer one of iron, and between the two water circulates heated by steam. These caldrons hold each of them nearly 300 gallons. The requisite heat of 77° in summer, and 86° in winter, is reached in about fifteen minutes for the first delivery, and after that in about ten minutes for each succeeding one. As soon as the

Cheese. milk is ready it is discharged through a wide trough to the cheese-room, and is delivered through taps placed at intervals into flat tubs, holding each about thirteen gallons. The proper quantity of rennet is now added, and in about three-quarters of an hour the milk begins to turn and some cream to rise; this is removed and made into butter. In about three hours from the first introduction of the rennet, when the whey is clear enough, the curds are carefully removed in slices, with a large flat spoon full of holes, into tin moulds of the three sizes into which the cheeses are made. These moulds rest upon a board, between which and the cheese is a reed mat, to allow the whey to drain away; the boards with the moulds on them are piled one upon another, and the whey runs off in small cascades to a brick table, furnished with drains leading to a reservoir connected with each table. As soon as the curd begins to contract, the moulds are moved and slightly shaken, the mould being raised a trifle at the same time. This operation is performed hourly, until the curds have shrunk to the size the cheese is permanently to maintain; this occurs about three in the afternoon, when a smaller frame, made of zinc, and capable of being opened and fastened with a button, is placed round the larger tin mould, which is removed, the zinc mould tightened and buttoned, and the cheese finds itself in a smaller mould, but still upon the reed matting. These smaller moulds, with the boards, are now placed one on the other in piles of about eight, and the remainder of the whey drains off. They remain so until the following

morning, when they are removed to other brick tables to make way for work of the succeeding day. Cheese.

The next operation is that of salting. The buttons of the mould are undone, and salt is sprinkled over one side of the cheese and round it; a dry mat takes the place of the wet one; the moulds are re-fastened and replaced in piles. In about six hours the salt will have melted, and the cheeses are turned, and in another hour, when no more whey exudes, the other side of the cheese is salted, and they are replaced upon the mat and board, but without the mould. The cheeses are now carried to a frame, where they are placed singly in a room the temperature of which is 64°. Here they remain for a couple of days, when they are turned; and in two days more they are carried to the drying-room. Seventy-five tons of salt were used in 1873, at £4 10s. per ton.

In the drying-room they are placed on a frame on mats only, the board being removed, and are turned every two days. They soon become covered with a white velvety mould, which increases daily in thickness, and turns somewhat blue; after a week in the drying-room they are ready for the cellar. In the cellar the temperature is kept about 53°, and the cheeses are turned every two days. In about fifteen days they are ready for market, having gone through various stages of colour—from blue to yellow, and from yellow to red. The whole process, from the first reception of the milk to the time when the cheese is ready for market, occupies thirty days.

The above arrangements are occasionally modified,

Cheese.

according to temperature, and according to the greater or less demand.

Three-quarters of a gallon of milk, at a cost of 5¼d., makes 1 lb. of cheese, the selling price of which is 6¼d., thus showing a gross profit to stand against all expenses of manufacture of 1d. per pound; in addition to which there is some small profit from the butter made from the cream, and a more important one from the fatting of pigs, of which there are always about 250 on the premises. They are weaned at six weeks old; for a fortnight afterwards they have whey, mixed with barley-meal; after that, and until they are sent to market at ten months old, they have nothing but whey, of which they drink five and a half gallons daily each.

The two establishments at Noyers and at Courtisols take in the course of the year 1,300,000 gallons of milk, costing	£28,450
Collection and manufacture	10,250
30,000 dozen straw mats	350
3,000 dozen reed mats	160
60,000 baskets	1,250
	£40,460

besides the wages of sixty workmen and women.

The annual produce is 845 tons of cheese, 60 tons of pork, and 29 tons of butter.

Before the establishment of these factories milk was worth only 3d. per gallon in this part of Champagne, and was used in making butter or in fatting calves. It now makes almost double, and, besides, the cow-keepers have whey very cheap.

Children and infirm people earn three to four francs

a week making the straw mats at their own homes; 200 people are so employed, besides twenty basket-makers. Cheese.

The workmen and workwomen sleep on the premises, and are very carefully looked after. The dormitories are well ventilated, and perfectly clean; the beds have spring and wool mattresses. There is a superintendent for the men, and another for the women, and a resident doctor. In addition to the salary agreed upon, gifts of money are periodically distributed. The salaries are increased according to length of service; and for the best workmen M. Bailleux purchases a house, to be paid for by instalments, without any charge for interest.

Brie cheese, or cheese of that character, could not formerly be bought under from 10d. to 13d. per lb.; M. Bailleux sells his at about half that price, and the consumption has increased tenfold in the last fifteen years. Nineteen-twentieths of the produce is consumed in France.

This system of manufacture on a large scale gives an excellent article at a moderate price, but produces nothing that can compare for quality with the Brie cheese made in its original locality about Coulommiers and Meaux. The home-made Brie still maintains its pride of place in the Paris market, and looks without envy upon the attempts of its rival to imitate it, knowing that there will always be customers enough who can appreciate the delicacy and flavour of the real article.

Cheese. Courtisols, the village in which is placed one of the factories of M. Bailleux, is one of those communities which are a puzzle to antiquaries. The inhabitants differ radically in moral and physical characteristics from the neighbouring inhabitants of Champagne. Active, enterprising, and hard workers, they offer a marked contrast to the typical Champenois. Their language differs from that of their neighbours, though the difference is gradually disappearing. They have customs at their marriages and deaths which are not practised anywhere else in the country. When parents, from age or from infirmity, are not able to work, their property is commonly divided among the children, who house and provide for the old people by turns. The population of the village is small—under 1,800—but keeps quite distinct. Opinions generally seem to incline to attribute a Celtic origin to these people. There are only about thirty names in the whole village; and, indeed, some seven or eight seem to be in every family; and none of the names are to be found out of the village in the whole country round.

ARTOIS, PICARDY, AND THE PAYS DE CAUX.

"PICARDY. Lying under the unprofitable neglect of open fields and disgraced with the execrable system of fallowing. Poverty and poor crops to Amiens.

"ARTOIS (away from that part bordering on Flanders). The husbandry to the full as bad as the country is good; corn miserable and yellow with weeds, yet all summer fallowed with lost attention.

"PAYS DE CAUX. There wants no inquiries into products in the Pays de Caux; the appearance of most I saw was miserable, and such as proved the land to be in an execrable state of management."—ARTHUR YOUNG, 1788.

"The agriculture of Artois is but little inferior to that of Flanders. The two departments of the Somme and of Aisne follow the Nord and the Pas de Calais in wealth as in geographical order. Admirably placed, they unite English and Flemish farming, and reach the highest point of rural production. Somme approaches most to the Flemish system, the Pas de Calais to the English."—LEONCE DE LAVERGNE, 1866.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
Pas de Calais...	744,441	1,651,404	1,229,620	90,722	30,825	87,087	80,046	197,170	301,752	157,444
Somme	548,031	1,540,297	1,318,265	83,800	14,935	100,000	65,981	143,384	549,735	40,796
Seine Inférieure	771,104	1,508,872	904,592	222,015	22,545	185,630	73,617	214,473	327,586	89,313
Aisne	543,446	1,837,997	1,366,077	128,062	19,085	226,742	81,490	123,499	915,617	86,488
Oise...	388,301	1,463,765	1,052,130	82,772	15,637	237,810	55,721	111,480	543,341	57,555
	2,995,323	8,002,335	5,870,684	607,371	103,027	837,269	356,855	790,006	2,638,031	431,596

	Population.	
	Collected.	Scattered.
Pas de Calais...	630,533	113,908
Somme	499,993	48,038
Seine Inférieure	570,936	200,168
Aisne	456,841	86,605
Oise...	325,291	63,110
	2,483,599	511,824

	Corn Crops in Acres. Returns, 1876.
Wheat... ...	1,445,070
Mixed	271,062
Rye	240,080
Barley... ...	206,792
Buckwheat...	6,982
Oats	1,176,572
	3,346,558
Potatoes ...	219,010

Special Crops.	
	Acres.
Rape	191,825
Poppy... ...	93,000
Flax	51,000
Sugar-beet ...	372,757

Population per square mile.

Artois, &c. &c. .	246
France	175

Artois, &c. &c. .	28·74 urban	...	71·26 rural
France	31·06 „	...	68·94 „

Decrease of Population from 1866 to 1872.

Artois, &c. &c. .	1·11 per cent.
France	1·29 „

Proportion of population who can neither read nor write, above six years old.

Artois, &c. &c. .	27·04 per cent.
France	30·80 „

"From Dunkirk to Nemours is not less than 180 miles in a right line; from Soissons to Carentan is another right line of about 200 miles; from Eu on the Norman coast to Chartres is 100 miles; and though the breadth of this rich district at Caen and Bayeux is not considerable, yet the whole will be found to contain not a trifling portion of the whole kingdom. This noble territory includes the deep, level, and fertile plains of Flanders and part of Artois, than which a richer soil can hardly be desired to repay the industry of mankind; two, three, and even four feet of deep, moist, putrid, but friable and mellow loam, more inclining to clay than sand, on a calcareous bottom, and from its marine origin abounding with particles that add to the common fertility resulting from such compounds found in other situations. Every step of the way from the very gates of Paris to near Soissons, and thence to Cambrai, with but little variation of some inferior hills of small extent, is a sandy loam of an admirable texture, and commonly of considerable depth. Under it is a strata of white marl, found under the whole country at different depths; this marl has the appearance of a consolidated paste. The line through Picardy is inferior, though for the most part excellent. There can hardly be a finer soil than much the greater part of the vast and fertile plain which reaches, with scarcely any interruption, from Flanders nearly to Orleans—a deep, mellow, friable loam, on a chalk or marl bottom." Soil.

Of that tract of country, thus praised by Arthur Young, Normandy, Beauce, and Brie have already been

noticed. Flanders, Artois, and Picardy will finish the consideration of the main corn and cattle-producing countries of France. The first in point of importance, though the last in arrangement, is this country of which Arthur Young seems almost at a loss to find words sufficiently strong to express his admiration.

Flanders, now the department of the Nord, is so exceptional that it must be described by itself. Picardy, Artois, part of the Ile de France, and the small portion of Normandy north of the Seine, are sufficiently similar to be classed together; though the northern part, bordering on Flanders, assimilates in its cultivation to that of this latter district. They now form the departments of the Pas de Calais, Somme, Seine Inférieure, Aisne, and Oise, and extend from the fens above Calais to the mouth of the Seine, and across inland as far as Champagne, containing 8,000,000 acres of land more purely agricultural, in the English acceptation of the word, than any other part of France. "Of this northern climate I may remark that much of it is, I believe, to the full as humid as the south of England."

There is a considerable diversity of soil and cultivation in this vast tract. The Thierache in the northern part of Aisne borders on the Ardennes, and contains much rough herbage among the forest clearings; Aisne and Oise have some of the largest forests in France; near Calais is a great fen country; at the mouth of the Somme is a stretch of rich land, Le Marquenterre, reclaimed from the sea; and in the country of Bray, in Seine Inférieure, there is much meadow-land as fine as

any in the Normandy of the left bank of the Seine, in which they say, "If you drop your walking-stick at night, it will be hidden by the grass in the morning;" round St. Quentin, and all along the borders through Arras and Bethune to St. Omer, the soil is as much divided, and as much forced in cultivation as any part of Flanders; but with these exceptions, which really do not cover a very important part of the 8,000,000 acres, the land consists of monotonous rolling hills, of no great elevation, nowhere exceeding 800 feet, dropping into valleys more or less abruptly. The country seems deserted; it is now as it was in Young's time: "No scattered farmhouses in this part of Picardy, all being collected in villages, which is as unfortunate for the beauty of a country as it is inconvenient to its cultivation."

Pays de Caux.

The Pays de Caux, High Normandy, the Normandy north of the Seine, occupies the triangle between Havre, Rouen, and Dieppe, the base being the chalk cliffs on the English Channel. The aspect of the country is very similar to the Isle of Thanet, the land is of the same nature, is fully as good, and as well farmed. The valleys are richer than those on our side the Channel, and are more populous. In some the houses surrounded by their gardens extend for miles; those at Aliermont, near Dieppe, continue for ten miles. The high open country has no water but what is saved in tanks or ponds; that from the latter is so thick that the country expression is that it is "eaten" rather than drunk. The rain filters

through the chalk, and reappears in abundant streams in the valleys, at a very uniform temperature of from 50° to 55° Fahr.

Properties.

Though the open country through Artois and Picardy seems deserted, the lines of trees, the spires of the churches, and the chimneys of numerous sugar-works and distilleries, always to be seen at no great distance in the valleys, show where the occupiers of the land and the labourers live, and they are never far from their work. The villages are as numerous as in the Pays de Caux; they seem almost to touch each other, and form a continuous street. Here and in similar suitable situations, the land is much divided into small properties, and to such an extent that it is asserted that one-third of the Pas de Calais is so held, and the value of such holdings has advanced during the last thirty years from £48 up to £80 per acre. Large farms and large properties have always prevailed here in the open country. Over half the department of the Aisne the farms average 250 acres. The land being hired on a money value, the métayer system—a division of the risks and the profits between the landowner and the farmer—so general in Central and Western France, is wholly unknown. This country has the advantage over Flanders of not having a super-abundant population; there are no more farm labourers than can be regularly employed and properly paid.

Religious establishments before the Revolution were large owners of land here, and a few powerful nobles

held great possessions; but there seems always to have been very few representatives of the smaller nobility. We English may in some degree be responsible for this, the nobility of Artois and Picardy having suffered severely at Cressy and Agincourt; but probably there never were so many small nobles as elsewhere in France. It is remarkable that of the eighty-three places in the French directory having the prefix "Château," castle, only one is in Flanders, and that is Château l'Abbaye, a castle belonging to an abbey, and only one in Aisne, Château Thierry, a royal castle. There is no other instance all through Flanders, Artois, and Picardy. Properties.

These large ecclesiastical establishments were good landlords and good farmers. It was at a Carthusian convent at Lillers that the first artesian well was bored in the twelfth century; it is still used, but is almost dry. The first attempts of pipe drainage were made at a convent of Oratorians at Maubeuge. Those who have succeeded these religious societies in the ownership of the land have maintained the character of the former proprietors, whose example has not been without its effect. But side by side with this ecclesiastical ownership has always existed a strong popular municipal authority: the first shown by the glorious cathedrals and abbeys of St. Omer, St. Riquier, Abbeville, Amiens, Laon, Soissons, Noyon, and many others; and the latter by the noble town-halls of Arras, Bethune, Douai, St. Quentin, and Cambrai, such buildings as do not exist elsewhere in France. The religious edifices are all, or nearly all, earlier than the English wars of the fourteenth century;

the municipal buildings are all later, mostly about the end of the fifteenth.

Crops. Three-fourths of the land are arable, and of this portion one and a half millions are sown with wheat. There are less than 500,000 acres of natural grass, partly formed of the fens near Calais, partly of the rich pastures that furnish the Neufchâtel cheeses and Gournay butter, and partly from those on the banks of rivers. Generally the land is light, but not thin; stiffer and more highly managed in the Pas de Calais and in Oise than in Somme, and part of Aisne. Though this country is much like many parts of England in its formation and produce, certain crops are cultivated here which are unknown in England, or seen but little; sugar-beet, of course, 373,000 acres out of a total of 473,000 for all France, and as the adjoining department of the Nord has 106,000 acres, it may be said that all the sugar-beet, or nearly so, is grown in this part of the country; 192,000 acres of rape, giving a value in oil of £536,000, and in cake of £120,000, and which is a fourth part of all the rape grown in France; 93,000 acres of poppy for crushing, nearly the whole produce of the country; and in the valleys much tobacco.

This growth of sugar-beet is greatly improving the produce of the land; it means more corn and more cattle, and it is having a greater effect here than in Flanders. Flanders grew, before beet was introduced, such crops as permitted a high rest; whereas in the larger part of Artois and Picardy, the farming was less "intensive,"

and the land dependent more upon the ordinary growth of corn, required, or at all events had, the rest of a bare fallow much more frequently than it has now. Beet, indeed, whether used for sugar or for distilling—and a distillery is now an adjunct to almost every large farm in the north of France—is changing the agriculture of France so rapidly that it seems likely that the present generation may see the fulfilment of the prophecy of Arthur Young, that the time would come when the relative position of the two countries, France and England, as to agricultural progress would be reversed, and France be as much before England in good farming as she undoubtedly is in soil and climate. As far as beet has penetrated, Arthur Young's words may be accepted as having already come true. Crops.

The manufacture of sugar from beet started in the department of the Nord (Flanders), which still possesses the largest number of works; and those in the adjoining departments of the Pas de Calais and Aisne are chiefly on the borders of the Nord, where the land is about equally rich, so that the details of the manufacture will be more properly considered when examining the farming of Flanders. Beet.

The details of a commune, and of a farm, bordering on Flanders, will show the progress made in value, and in cultivation, in this part of the country, and may be taken to represent fairly enough the condition of the townships through the richest part of Artois, and most Land.

Land. of Flanders. The commune is that of Brebières, between Arras and Douai, and the farm that of the late M. Pilat, President of the Agricultural Society of the Pas de Calais.

The commune is upon that monotonous plain which extends into Flanders. It consists of 2,702 acres, and the population is 1,762; there are forty-two houses for the sale of liquor, and the consumption of meat is at the rate of 88 lbs. per head per annum. There are two sugar-factories, each using 20,000 tons of beet yearly, a flour-mill, grinding 1,500 bushels of wheat a day, three smaller flour-mills, a brewery, three brick and tile works, a quarry, a lime-kiln, and the usual shops furnishing the wants of the population, a charitable society, with an income derived from land of £320 per annum, and the wages paid by the various manufactories exceed £8,000 per annum.

Wheat is grown upon 850 acres, which is double the amount of all the other corn-crops together; sugar-beet upon 587 acres; rape and flax upon 175 acres. There are 150 horses, 300 cows, 600 sheep, 170 pigs, and 135 goats. There seem to be no bullocks.

The soil is the same as that all through this country, clay, with a mixture of calcareous matter, one to two feet deep. The immediate subsoil is clay, with some oxide of iron, more than two feet thick, reposing upon pure chalk. The clay subsoil is used for brick-making, the chalk is quarried for lime. The land has been highly cultivated and heavily manured for a long time, more particularly during the last half century. The rent per

acre in 1789 was 25s.; in 1840, 45s.; in 1874, 63s. for farms of a fair size, including Government taxes, which are about 7s. per acre in each case. The seventy-five acres belonging to the charitable society are let on leases of ten years, at 75s. per acre, with a premium equal to one year's rent; but the holdings are only of one acre each. In 1789 land was worth £37 per acre; in 1840, £80; at the present time, in lots of 60 to 80 acres, it would make £120, and in lots of two to three acres, as much as £160 per acre. Money invested in land paid 3½ per cent. in 1789, 2¾ per cent. in 1840, and would only pay very little more than 2½ per cent. now. As a matter of comparison, it may be noted that estates in poor and out-of-the-way parts of France, such as the marshes near Marseilles, or the Landes near Bordeaux, can be bought to pay 5 per cent. The proportion of rent to the gross produce for the larger holdings was, in 1789, 3·1 per cent.; in 1840, 3·4 per cent.; and in 1874, 4 per cent. The income from the land has increased absolutely, but the gross produce has increased so much more that relatively it has diminished. The richer the country the smaller the interest land will pay. In the north fortunes are large, and when land is in the market there is much competition for the purchase. It gives there, as it does in England, local influence and distinction. Land.

The tendency of property and farms is to become divided. In 1830 there were three large farms in the commune of Brebières, of from 300 to 400 acres each; in 1838 one was cut up, and in 1848 another, leaving Farms.

Farms. only that of M. Pilat, which then consisted of 310 acres; this has since been gradually reduced, until now it is only 217 acres. Reduced as it is, it still is the largest, not in Brebières only, but in the neighbourhood, where the farms generally run from 20 to 100 acres:

CROSS OF LEICESTER AND MERINO OF M. PILAT'S FLOCK.

the rent of land in small parcels so greatly exceeds that in larger ones, that owners prefer dividing their property when opportunity offers, and it is probable, now that M. Pilat is dead, that his farm will be divided among smaller occupiers. The buildings generally are put up by the lessees.

The farm of M. Pilat consists of 217 acres, not altogether, but made up of twenty-eight separate por-

tions, the farthest being nearly two miles from the homestead. The farm-buildings cover about an acre and a half, which is a small area for a farm of this size in France; they surround a large court; there are two barns, in one of which is the threshing-machine, and 50,000 sheaves of corn can be housed in the two. The stables hold thirty horses. They are divided so that the four horses that work each plough—and there are six ploughs—are stabled together, each lot before a stone trough and a rack, and at the back a berth for the ploughman to sleep in. The sheep are housed in buildings which are divided internally into bays by dwarf walls, and in which 450 to 500 can be easily lodged. There are the usual buildings for a cow-shed, poultry, for housing machinery, straw, cake, &c. The beet-pulp is put into pits, and there is a manure-tank holding 130,000 gallons. The value of the buildings is £2,400, and of the farm implements £600. Farms.

The crops upon the farm in 1873-74 were: beetroot, seventy acres; beans, eight acres, with a small patch, two acres, of carrots and potatoes; ninety acres of corn, of which more than half was wheat; thirty acres artificial grasses; and fourteen acres flax. Wheat is always sown after beet, having two harrowings, one rolling with a smooth roller, and then two more harrowings; the wheat is drilled in rows eight and a half inches apart, and with ten gallons to the acre; the land is then rolled with a Crosskill. In the spring, according to circumstances, after a light harrowing, the Crosskill is again used, or the smooth roller, and the necessary

Farms. hoeings are performed. On this rich land wheat is very liable to be laid, which is not to be wondered at, as the straw is commonly six feet high, and the average growth forty-four bushels to the acre. This has been the average for the last ten years: the highest was in 1868, and was fifty-three bushels; the lowest in 1873, when it was thirty bushels; some pieces of from ten to thirteen acres have produced fifty-five, and even over sixty-one. In 1846 the highest yield did not exceed thirty-eight and a half bushels. Oats yield seventy-five bushels, and sometimes eighty-eight, and even as much as 110. They do not pay, however, on such highly-rented land, and the growth is diminishing. It is the same with winter barley, formerly a very favourite crop: it gives an average yield of sixty bushels. Forty years ago it formed one-third of the corn-crop, it is now only one-seventh. Rye is grown only for making binders for the sheaves.

The use of artificial grasses is diminishing; it is now very little more than one-eighth of the farm. Clover lasts one year, lucerne four, but a mixture of rye and winter-tares is coming much into use, and is likely to be the only green crop generally possible here; it is sown after wheat, and grows to a height of from six to six and a half feet; beet-pulp supplies the place of clovers.

Flax. Flax is much grown in Flanders, and in this part of Artois, but usually does not occupy more than from one-twentieth to one-twenty-fifth part of the land. On

M. Pilat's farm it occupies one-tenth. It is grown after corn, upon which clover has been sown; the clover is ploughed in at the end of October or in November. Shortly before sowing the land is ploughed, and a dressing of eight hundredweight of rape-cake and two hundredweight of nitrate of soda is applied. Sowing is a delicate operation: frosts are frequent, and the seed must not be put in until the frost is quite out of the ground. The preparation of the ground is elaborate and costly; no less than ten harrowings alternating with four rollings are given; and when growing, much cleaning by hand is required. In 1874, upon fourteen acres, thirty women or children were employed for a whole month. The seed is sown broadcast at the rate of two and a half hundredweight to the acre. The growth of flax has diminished in France: from 250,000 acres in 1862 it fell to 200,000 in 1872; it is now, 1876, increasing again, the importations of seed having exceeded the usual amount by 2,000 tons. Pas de Calais and Somme grow one-fourth of the flax in France. In England the land under flax fell from 24,000 acres in 1870 to 6,751 acres in 1875. Flax.

Upon this farm of 217 acres, root-crops and corn occupy three-fourths of the ground; forage-crops, about one-eighth; roots and corn are equal in area; beet, the most important of the roots, exceeds wheat, the most important of the cereals, by one-third; roots cover eighty acres, and take 800 tons of farmyard manure and 1,280 tons of refuse from the sugar-works. Crops.

Population.

Population is 246 to the square mile, that of France being 175, and the people are largely employed in manufactures, not wholly in large towns, but in the innumerable small villages that spread through the numerous valleys of the country. Here the people live collected together. Out of the 3,000,000 inhabitants only 500,000 are returned as living in isolation, the rest in small communities, though there are some large towns, as Rouen, Havre, Amiens, averaging nearly 80,000 each; Arras, Boulogne, St. Omer, Abbeville, St. Quentin, and Dieppe, average about 27,000; six other towns average 11,000; three more, 6,000; which only accounts for 500,000: and as another 500,000 live in scattered habitations, the remaining 2,000,000 must live in the populous villages which make the valleys so thick with human life. Here the people are employed partly in manufactures, partly in agriculture; and mostly heads of families have a little dot of land "lying out in the sun," as they express it, which makes them feel very much as if they were their own masters, although they themselves, or some of the family, may be working for wages in a neighbouring manufactory, or on a farm.

Education.

Education is somewhat above the average of France, 27 per cent. of those above six years of age being unable to read and write; that of France being 30. The most densely populated departments show the worst, while Oise, the most thinly populated, shows best: in this department only 21 per cent. are so deficiently

instructed; in this respect it stands twenty-second out of the eighty-seven departments.

Few districts in France are so well provided with means of communication as Artois: 1,176 miles of railway, 18,000 miles of roads, 272 miles of canals and navigable rivers, render every part of the country accessible, and furnish means for the transport of its numerous mineral and manufacturing productions, more important even than those of its rich agriculture, which latter alone amount to more than £8,000,000 per annum. Roads, &c.

There is a local breed of sheep in Picardy which maintains its position with some inland farmers against the very general introduction of the crosses of the merino and the English; it is heavy, hardy, and a good walker—the last quality no slight advantage in a country where the farms are much divided, and sheep have often long distances to travel to and from their feeding-ground. It has very generally dark patches upon the face, brown or black; and the same type of sheep, with the same peculiarity, is to be found along the Rhine, and through Bavaria, Wurtemberg, and Baden. Sheep.

On the marshes the Flemish breed is preferred, and this is to be found upon all the lands bordering on the North Sea, from Dunkirk as far as the mouth of the Seine. It appears again on similar land in Vendée. Both these breeds are probably of the same

Sheep. race as our Leicesters and Romney Marsh sheep, but they have not been improved by the care which their congeners in England have received.

But it is in Aisne that the finest sheep in France are to be seen. This department has a larger number than any other, and they are out of all comparison the

FLEMISH SHEEP.

best. The breed is the merino improved—not by crossing with Leicesters, which is carefully avoided, but by careful selection. From the first introduction of the merino into the north of France it succeeded better here than anywhere else. The best and largest flocks are in the neighbourhood of Soissons, and the principal breeders, with their 1,000 head each, find a considerable profit in letting their rams. For particulars of these sheep and their wool, see p. 118, under the head "Sheep."

The cattle in Artois and Picardy are almost wholly kept for milking; the only exceptions are on the farms where sugar-beet is grown, and here bullocks are purchased to do the extra work at the time of sowing and Cattle.

IMPROVED MERINO RAM.

(First Prize at Compiègne, 1877. Bred by M. Duclert, Edrôlles, Aisne. Thirty-eight months old; wool weighed 23 pounds; live weight of meat, 286 pounds.)

getting in the roots, and when the work is done they are fatted off and sold: for general cultivation, oxen are not used; indeed, out of a total of 800,000 head of cattle, nearly 500,000 are cows, and only 18,000 oxen. The heifer-calves only are reared as a rule, the males being fatted and killed as calves. As soon as the cows cease to

Cattle. be amply profitable as milkers, they are put up to fat; and the greater part of the meat sold through the north of France is that from cows. At Arras 21,000 cows are slaughtered annually, against 1,700 oxen and 2,100 bulls.

There can hardly be said to be any distinctive local race, that called the Picardy being an inferior Flemish. It has, however, many supporters, and some farmers assert that they are as good milkers as the pure Flemish, or the Norman, which is probably true enough upon the farms where they are used, as they are more in conformity with the land than the breeds which would require higher feeding to be profitable.

In the northern part of this country the Flemish breed is the most used: the colour is a deep rich red, with generally some patches of white about the head, which is long and narrow; the nostrils are large, the horns short and fine, curving forwards, and are rather flat-sided. The milk of these cows is abundant—where the food is plentiful it amounts to from eighteen to twenty-six quarts a day, and is specially good for making butter; and the cows fatten readily. In this respect, and in general conformation, the females are better than the males.

Through Somme, Aisne, and Oise, the Dutch and the Norman are more used than the Flemish, the Norman specially as Paris is approached. The Dutch cattle are black and white pied; the head is fine and long, and slightly Roman-nosed; the horns small and fine, slightly bearing forward; the body long and narrow, and they

are narrow-chested. They give a great quantity of milk —as much as thirty-five quarts a day in some cases—but it is not rich milk. They are gross-feeders, requiring much nourishment, and they do well on the rich pastures near Soissons; but they fatten very badly when they are put up to feed after they cease to pay as milkers. Cattle.

The Norman breed is here, as it is everywhere else, good for milking, imperfect as a meat-producing animal, but a profitable stock to keep, as the yield from milk or calves brings in money continually.

Shorthorn blood, whether pure or crossed with the native breeds, meets with little general favour in this country. The desire to get more early maturity has led to its introduction, and it may progress, but at present the breeders are quite content with the Flemish and Dutch; they satisfy the requirements of the country, and the Flemish especially finish up well in the fatting-stall, after having been profitable servants in the dairy.

The local breed of horses is the Boulonais, a heavy cart-horse, of great reputation, not distinguished in England from the Flemish, though these latter are more lymphatic and coarser. The breed extends from Dunkirk to Dieppe, but the Pas de Calais is its chief seat; it is more heavy in the marsh-lands about Dunkirk, less so in the Marquenterre, on the banks of the Somme. These horses stand over sixteen hands high, with a powerful frame, heavy and somewhat short neck, broad chest, powerful but rather straight shoulders, sound legs, with a tendency to lightness in the fore arm, short pasterns Horses.

Horses. well covered with hair, and they are usually of a mottled-grey colour. According to a custom which prevails very generally in France, there is much division of labour in horse-rearing.

Born in the centre of the department, and on the low lands near Dunkirk, the Marquenterre, and on the left bank of the Somme, they are sold as soon as they can be weaned. The colts are bought by the farmers between Abbeville and Eu, in the old country of Vimeu, and here the finest colts are to be found. Every farmer rears horses, seeking the foals all through the breeding country, even as far as Flanders. They are kept here until about two and a half years old, when they find buyers upon the larger farms, and eventually many find their way to the towns in the north of France, and to England.

The fillies are sold where they can be used for breeding after working on the farms.

The true race seems somewhat declining. At the show at Arras, in 1876, out of 150 entries there was not one that did not show evidence of some English or Flemish blood; some bad crosses had the carcases of draught-horses and the legs of a thoroughbred.

BRAY.

Butter. In the Seine Inférieure is the district of Bray, containing the rich pastures of Neufchâtel and Gournay, celebrated for its large manufacture of cheese and butter.

The Gournay butter stands second only to that of Isigny at the other end of Normandy. At the Exhibi-

tion at Paris, the judges soon decide that for the grand prize no butters but those of Isigny and Gournay are worthy to compete. Isigny always wins; it always must, as the show is in the winter months. During this season the Isigny butter makes from 3s. to 3s. 6d. per lb., wholesale by auction in the Paris market, whereas that from Gournay realises only about 2s. In the summer, the values are more equal, each being about 2s. —the Isigny a trifle over, the Gournay a trifle under. The total production of butter in the arrondissement of Neufchâtel, in 1873, was 3,300 tons, which would average on the spot 13d. per lb., or £120 per ton, making a total of nearly £400,000; that of the whole department amounts to £700,000. Calvados, in which Isigny is situated, produces more than double this. Butter.

Neufchâtel, however, is more known in England by its cheese, the manufacture of which amounts to 4,500 tons annually, the sale being £270,000. These are the small cylinder-shaped cheeses called bondons, and they are turned out by machinery at the rate of 1,200 in the hour. There are only 400,000 acres in the arrondissement of Neufchâtel, and over a large part of the country the soil is very poor, and covered with forest; but the butter and cheese returns amount to nearly £2 per acre for the whole 400,000. There are but 81,000 inhabitants, and the income from the same source is nearly £10 per head for every man, woman, and child, besides the value of the calves, the skim-milk, and the whey. Cheese.

A cheese of considerable reputation, called Rollot, is

Cheese. made in the departments of the Somme and Oise. The produce amounts to upwards of 4,500 tons, representing a value of £120,000, which is only half the value of the Neufchâtel cheeses from the same amount. The butter produce in these two departments is over 5,000 tons, and is valued at £400,000; the Gournay butter makes as large a sum from 3,300 tons. In Oise, less than half the cows are devoted to the production of butter and cheese, the milk of the larger portion being used in the rearing of calves, and in supplying Paris with milk. In consequence of the increasing demand for the latter purpose, the Dutch breed of cattle is supplanting the Norman, which is the breed used at Neufchâtel and Gournay.

FLANDERS.

"FLANDERS, among the French themselves, has the reputation of being the best cultivated in the kingdom. The difficulties, however, of gaining information increased at every step, for not one farmer in twenty speaks French."—ARTHUR YOUNG, 1788.

"The department of the Nord is the best cultivated country in France, and one of the best in the world."—LEONCE DE LAVERGNE, 1866.

Flanders.

	Population, 1872.	Area in Acres.	Arable.	Meadows, Pastures, and Sheepwalks.	Waste.	Woods.	Horses.	Cattle.	Sheep.	Pigs.
Nord	1,415,617	1,420,215	946,415	124,415	4,417	237,810	83,053	264,680	136,059	85,692

	Population.	
	Collected.	Scattered.
Nord	1,048,827	366,790

Corn Crops in Acres. Returns, 1876.	
Wheat... ..	340,705
Mixed	2,690
Rye	28,482
Barley... ...	27,655
Buckwheat...	112
Oats	136,515
	536,159
Potatoes ...	60,632

Special Crops.	
	Acres.
Sugar-beet ...	105,767
Hops	3,000
Flax	22,075

Population per Square Mile.

Nord	652
France	175

Nord	56·72 urban ...	43·28 rural.
France	31·06 „ ...	68·94 „

Proportion of Population who can neither read nor write, above six years old.

Nord	36·6 per cent.
France	30·8 „

The most northerly—the Flemish—part of "this noble district of rich loam, the finest plain in Europe, Lombardy only excepted," is now, and has been for ages, the most richly cultivated. Maritime Flanders, extending from Dunkirk to Calais, and by St. Omer to the Belgian frontier, is a tract of nearly 400,000 acres, hardly any of which is not good. Nearly 150,000 acres are fens, protected from the sea by embankments, and drained by innumerable canals, producing rich grass and heavy corn and root crops. The cattle are large and good milkers, and the beef of excellent quality; and Bergues, the agricultural capital of the country, is one of the largest markets in France for corn, cattle, flax, and butter. Land.

Some hills rising from the dead flat are so conspicuous that the inhabitants may be pardoned for calling them mountains, though the highest of them only rises to the average level of the plain of La Beauce.

At the extreme east of the department, there is much good grass-land, more adapted, however, for breeding and rearing than for fattening cattle; and approaching westwards, towards Douai and Valenciennes, there is more corn-land, a country of good farming, but not so rich or so highly farmed as the centre of the department.

It is in the arrondissements of Valenciennes, Douai, Cambrai, and Lille, in the department of the Nord, and in those of Arras and Bethune in the department of the Pas de Calais, that the highest Flemish farming is to be found. Agriculture and manufactures are here so closely connected, that the seed sown on the land leaves it in the Farming.

shape of sugar and spirit. This is the great coal and manufacturing district of France—the centre of the great coal basin of the north. There are coal-mines elsewhere, and manufactories elsewhere, but in no part of the country are there so many of either.

Manufactures.

This proximity of mineral and manufacturing wealth to some of the richest and most highly-farmed land in France, creates a picture of human activity which has not its like in the world. Lille, where there are six hundred mills for crushing seeds, unites the work of the oil-mills of Hull with the engineering-works of Newcastle; that of the thread-mills of Leicester with the cotton-mills of Manchester. Roubaix and Tourcoing, seven miles apart, but really almost joined by a continuous line of houses and villages, are the centres of the manufacture of woollen and mixed fabrics, as Leeds and Bradford. Valenciennes manufactures steel, as Sheffield, and linen, as Ireland. Cambrai still produces that article to which it has given its name, adding to it the spinning of flax. Douai is celebrated for its embroidery, and for its make of machinery for sugar-refining and distilling, and of agricultural implements. In these, and in the smaller towns, are also made thread, carpets, sail-cloths, sacks, lace, tulle—everything, indeed, into which cotton, linen, and wool can be worked up. There are besides, dye, soap, and glass works, and more than one thousand breweries; and over and above all are seen on all sides the tall chimneys of the manufactories of that wonderful produce, unknown in England, beetroot sugar.

This manufacturing activity, so much like that of England, has this distinction — that by its side, and mixed up with it, is the highest farming to be found out of China or Lombardy. It is this that makes Flanders so great a contrast to the coal and manufacturing districts of England. From almost any manufacturing town in England, a country as barren and as wild as the backwoods of America can be reached in a short walk. The grouse crows almost within hearing of the inhabitants of the outskirts of Sheffield; wild Yorkshire moors come close up to the busy towns of Halifax and Bradford; bleak Cheshire and Derbyshire hills look down upon the smoke of Manchester; it would be hard to find farming, properly so called, of any kind in the coal district of Birmingham. It is only towards Leicestershire that manufactories and farming seem to approach each other; but there it is caused by the rich grass pastures of the county, which can in no way be compared to the farming in this part of Flanders, where there is hardly an acre of natural grass, but where all is under tillage. Manufactures.

The holdings in Flanders are of various sizes, large, medium, and small. At the extreme east and west they are larger than in the centre, where a medium-sized farm would be called small in England. Near Lille, twenty-five acres is called a considerable property. Here one farmer in four cultivates his own land, one in five cultivates with the spade, two in five with a single horse; but there are farmers, nevertheless, who turn out from 600 to 700 head of fat cattle, and from 1,500 to 2,000 Holdings.

Holdings. sheep yearly, and whose wheat-crop seems small when it yields only six quarters to the acre. Freeholds have risen in value in thirty years from £64 up to £80 per acre, and rents from 32s. to 48s. This rise is less than in most parts of France, but Flanders started from a higher level than other places. On the smaller holdings such crops are grown as rape, 25,000 acres; poppy, 13,000; flax has almost doubled, and is now (1877) 43,000 acres; hops, 3,000; tobacco, 1,000; chicory, 3,000, almost the whole growth of France; besides the various kitchen-garden articles that find a sale in the populous towns, and which enter so largely into French diet.

Manures. The most stimulating manures are used: human excrement is carefully collected, and its very general use is frequently evident to the passing traveller; 95,000 tons of guano, a fourth of the French consumption; and 216,000 tons of chemical manures are absorbed.

Crops. Of the 950,000 acres under tillage, wheat and beet occupy half, wheat in 1873 showing 340,000, and beet 106,000; oats are returned as 136,000 acres, and barley as 28,000; but oats and barley fluctuate very much, they are neither of them considered main crops. When barley is grown, it is usually winter barley, which is preferred by the brewers in the north of France to spring barley. On many farms, one-third of the land is always under beet, and is cropped with beet and wheat alternately, or beet and winter barley. Sometimes a crop of barley follows one of wheat, the manure given to

beet sufficing for the two corn-crops. Spring corn is not very largely grown; it is sown when the beet cannot be cleared off in sufficient time in the autumn for wheat to be sown, or if the condition of the land in the spring is considered not sufficiently good for spring wheat. But the crops obtained from all these show the high state of farming in Flanders. In 1872, which, however, was an exceptionally good harvest, the department of the Nord averaged 28 bushels of wheat to the acre, which is the estimated production of Great Britain. In this it was beaten by the Oise, Seine-et-Marne, Seine-et-Oise (La Brie indeed), each of which departments averaged 30 bushels. In barley and oats the Nord was far above any of its neighbours, averaging 41 bushels of the former, and over 50 bushels of the latter, to the acre; of straw, the yield in the same year was, for wheat, 32 cwt.; for barley, 24 cwt.; and for oats, 27 cwt. The average yield of wheat through France, in 1872, was 19 bushels per acre, and 18 cwt. of straw; for Great Britain the average yield is estimated at 28 bushels. Crops.

The 1,000 acres of tobacco yield 24 cwt. to the acre, which is double the average of France.

The arrondissement of Dunkirk consists of 180,000 acres, mainly marsh and fen land, which was drained by open watercourses: in 1852, nearly 4,000 acres were taken up by these drains; in 1875, the quantity had been reduced to 200 by the use of covered drains, and so much land was gained to cultivation. This system is extending, and the smaller watercourses are becoming Fens.

Fens. gradually covered in. Much of the old pasture-land through this country is being ploughed, the temptation of a high temporary rent, amounting to £8 per acre, inducing landowners to permit this breaking up. The average produce of wheat for twelve years has been here 30 bushels per acre; for beet, 16 tons; and on the pastures, one bullock has been reared to the acre. On the best-managed farms, the average reached for the same period was 40 bushels of wheat, 20 tons of beet, and four head of beasts on two acres and a half. During the summer months two head of cattle were fed on each acre upon artificial grasses, on the system of annual pasturage, the land being ploughed up after only one year of green fodder. Winter food is provided abundantly by the pulp from the small distilleries which are to be found within reach of every farm in the country.

Population. The department of the Nord is nearly as large as the West Riding of Yorkshire, and is more thickly inhabited, there being one inhabitant to the acre—almost as many as Staffordshire. The arrondissements of Dunkirk, Hazebrouck, and Avesnes, which occupy half the surface, have few manufactories; this is the purely farming part of the department. There is one inhabitant to every two acres—the same as our farming counties of Hertfordshire, Hampshire, and Berkshire. The manufacturing half, the arrondissements of Lille, Cambrai, Douai, and Valenciennes, have one and a half inhabitants to the acre—about the same as Cheshire and Lancashire.

The arrondissement of Lille by itself consists of 218,522 acres, and is as thickly populated as Lancashire, but the area of Lancashire is six times as great. The fourteen largest towns in Lancashire (excluding Liverpool) contain over 1,000,000 inhabitants; the fourteen largest in the Nord less than half that number. The three largest towns in Yorkshire have 650,000 inhabitants; the three largest in the Nord less than 300,000. Although the population of the Nord equals that of the West Riding of Yorkshire, and in some parts that of Lancashire, it is not so crowded. The returns give 367,000 as living in scattered habitations, and 1,000,000 as living collected together; 43·28 per cent. as being rural, and 56·72 per cent. as urban. Population.

In the Report of the Commissioners for the English Census of 1871, the rivers in the manufacturing districts are said to be "polluted by the refuse of manufactures, and to some extent by sewage, although the impurities, as a general rule, are retained about the houses, and are not discharged into the sewers." Something of the same kind may be said of the manufacturing districts in the Nord. The rivers are there also polluted by the refuse of the manufactories, and the impurities are not discharged into the sewers. Instead, however, of being retained about the houses they are applied to the land, high farming and thick population existing together; but nowhere in the Nord is there to be found the over-crowding to be witnessed in some of our manfacturing towns.

Of no place in France would it be possible to write what was written in a London weekly paper in March,

Population. 1876: "Miserable cottages are being built in rows, to arrive at which you must plunge through a slough of black mud. Damp, ill-built, and ill-drained, disease clings to them, and family after family is compelled to leave. It is impossible to build houses with profit, and the result is over-crowding. Sanitary inspection is in many places unknown or useless. The *Barnsley Times* gives an account of the village of Ardsley, which is probably true of many others. The cesspools overflow the highways; an open field is used as a slaughter-house; so many people live in the same building that they have to go to bed by turns, while in one case fourteen people slept in one great round bed with their feet to the centre. Water is a necessity of life, but it does not exist."

The work-people in the Nord are well housed, either in consequence of their own thrift, or of the care of the employers. In the case of the great coal companies it is to the employers that the good lodging is due. Large blocks of buildings, solidly constructed, and well drained, are erected near the mines; they are called workmen's cities. The company of Anzin, the largest in the north, which pays annually a quarter of a million sterling in wages and salaries to 10,000 workmen, has built 1,200 good substantial houses; each separate mine has schools, an apothecary, a surgeon, and a hospital, maintained at the expense of the company. Pensions in old age, and assistance, when necessary, are given to the workpeople, without any deduction from the wages. The capital of the company is a million and a quarter sterling.

This department boasts that in ten years it invested

over £4,000,000 of its savings in two only of the Government stocks, and that it pays one-sixth of all the taxes collected in France. There is probably some exaggeration here. It is not, however, worth while stopping to examine into its truth; it is, no doubt, near enough the truth to give one more proof that where there is the most wealth there will also be found the most want, and that in the poorest countries there is the least destitution. Population.

This rich department furnishes one-sixth of all the poor in France (273,759 out of 1,608,129) who receive relief from the public offices. No other department except that containing Paris, which is 184,569, reaches 100,000: only two others exceed 50,000; and the scale goes on descending almost in proportion to the supposed poverty of the inhabitants, until, in perhaps the poorest of all, there is an arrondissement containing forty-two communes and 44,000 inhabitants, where the people are so well off that there is not a single office for the relief of destitution, there being none to relieve.

The 9,000 hospital beds in the Nord are always full, the 162,000 in other parts of France are never fully occupied; it therefore furnishes about one-eighteenth part of the helpless sickness. The official reports show that nearly 50,000 out of the 158,000 inhabitants of the rich city of Lille receive charitable relief in the course of the year, at a public expenditure of £28,000; Roubaix, with half the population of Lille, spends £16,000; Tourcoing, with half the population of Roubaix, £11,000. These amounts are what are actually given from the

Popula-tion. offices; there are no expenses of administration, or but few, and the public expenditure does not represent the whole relief given.

Against these evidences of poverty must be set the fact that the standard of living is much higher in Flanders than elsewhere in France. The people eat good bread and much meat, consume a considerable amount of beer and spirits, and live, not, as in other parts of France, on rye-bread and buckwheat soup, skimmed milk, dried fruits, and thin wine; the inhabitants of some large districts do not taste meat all the year round. In Lille, the consumption of spirits is one gallon per head per annum for every inhabitant—man, woman, and child—besides forty gallons of beer and six gallons of wine. The Marquis de Dampierre has stated that he knows of one town in the Nord, of less than 4,000 inhabitants, where the consumption of spirits equals three gallons and a half per inhabitant per annum, as against one pint to one pint and three-quarters for the average in the centre of France. But here, probably, these statistics are deceptive: these towns are market-towns, with perhaps two or three markets a week, and the real inhabitants may not get the share of drink attributed to them. It would be hard upon the inhabitants of Calais and Amiens, to charge to their account the liquor consumption of the travellers from England to Paris. The quality of the drink consumed is of the worst. The price of alcoholic drinks in Lille is lower than it is in the eight largest towns in France. It may fairly be assumed that "that wonderful root the beet," and not

the grape, is the origin of the supply; and the price of beer is lower than anywhere else in France, or at all events lower than anywhere out of the department. Population.

Flanders keeps the lead in physical robustness: it supplies one-twenty-fifth of all the marriages, one-nineteenth of all the births, and one-seventeenth of all the twin births. The marriages are earlier, three-fourths of the men being under thirty; the average of France is only two-thirds.

The deaths of infants under one year old in France are 146,328 yearly; in the Nord they are 5,332; if they were as large in proportion as they are through France, they would be 7,727. Furnishing the nineteenth part of the births, the Nord furnishes only the twenty-seventh part of the mortality of infants under one year.

Since 1872, the population of France has increased at the rate of about 103,000 yearly; if the other parts of France increased as much as the Nord, the annual increase would be 500,000, which is larger than that of the United Kingdom.

The Nord was the only department that showed any important increase of population between the census of 1866 and that of 1872; it amounted to nearly 4 per cent., whereas France showed a decrease of 1·29. In addition to its own population, Flanders finds work during harvest for a large number of Belgians, who cross the frontier much as the Irish do, or used to do, at harvest-time in England.

The standard of education is low. Of the eighty- Education

Education. seven departments, it is the fifty-sixth in rank: more than 36 per cent. of those above six years of age can neither read nor write, the average of France being low enough, viz., more than 30 per cent. In the marriage registers, one-third of the men, and one-half of the women, could not or would not sign their names, marking only with a cross; the proportions for all France being about one-fourth for the men, and one-third for the women.

The state of education, gauged by this test of not reading or writing over six years of age, varies very much. In the fourteen largest towns, with a total population of nearly 500,000, about 150,000 are in this state of ignorance; but while Douai and Armentières, with a joint population of 43,000 inhabitants, have only 6,400 so low, Denain, Halluin, St. Amand, and Wattrelos, with a united population of 60,500, have 25,500, Halluin showing the incredible number of 8,654, out of a total population of less than 13,000, not able to read or write.

Cattle. The cattle are almost wholly of the Flemish or of the Dutch breed. The colour of the first is a deep mahogany red; that of the Dutch is black pied. Both sorts are excellent milkers, and the Flemish fatten very readily, which the Dutch do not. It is not usual for cattle to be worked on the farms in Flanders, but on some small holdings the cows are so worked, and this field-work does not seem to lessen the yield of milk, or render them less easy to fatten.

Very few calves are reared, and those few are heifers: Cattle.
it pays much better for the farmers to buy cows in calf, with perhaps their second or third calf, to keep them well while they are in milk, and to fatten them for market when they dry off; they often pass through the farmer's hands without dropping more than one calf, giving a good profit from their milk, a valuable supply of manure, and selling for more than they cost when they go to market. It by no means follows that because cows go to the shambles they should be old cows; sent and prepared as above before they are worn out, the meat makes at least as good a price as that of oxen; and as for the degree of fatness, it is amply sufficient for the tastes of the purchasers; such meat as English buyers look for would be passed by in Flanders as being greasy and wasteful.

On the farms where sugar-beet is grown, working-oxen are used, which are fatted on the pulp when the heavy work is done; and for stall-feeding only, in the sugar-producing districts, anything is purchased that comes to hand, mainly, however, cows that have ceased to be profitable as milkers. A large quantity of these barren cows are provided by Belgium. Cows in milk come from Eastern Flanders, Belgium, Holland, Rhenish Bavaria, and the east of France; cattle for fatting purposes only, from Western France, Anjou, Maine, and Brittany. The last have probably a cross of English shorthorn blood; but this cross meets with no favour in the countries that supply the Nord with its stock of milking-cows. Any milch-cow showing a sign of a

Cattle. shorthorn cross would not find a ready sale, the farmer reckoning that such an animal would give from £4 to £6 worth of milk less in the year, but for fatting purposes only no objection would be made.

The Government officials retain their preference for shorthorn blood with a view of encouraging an earlier production of meat; but practical farmers find that they do better with a breed that is precocious in producing milk, not too fastidious in its food, and gives as good meat as the buyers wish for. Rewards at cattle-shows are offered in vain in the class of shorthorns, the money prizes and medals can never be all distributed for want of sufficient competitors, and those that are given always go to the same fancy breeders who rear stock with a view to these honours.

The number of cattle returned in the Nord is 260,000, but here statistics are very unsafe guides, for whereas the number given in agricultural returns do in some districts really represent the quantities that exist in those districts permanently, or on an average, in others they only represent those that happen to be on the land at the moment of making the return, while the stock may be continually renewed; this is the case in the Nord. As a rule, stock of all kinds is bought when full-grown, and only remains on the farm while giving milk or being fatted, so that a farm which returns only one hundred sheep or head of cattle, may really turn out three or four times that number during the year; while in other countries the number returned would be the full quantity that a farm bears during a whole year. As the

fatting season is from September to March, the time at which the sugar-factories are at work, the stock of sheep and cattle is then enormously larger than at any other period, and it would be quite possible, if the census were taken at a certain moment, to find large farms bare of stock, which really fed hundreds of sheep and scores of cattle. The fatting of stock besides is so independent of the work of the farm, that if lean animals are dear, none are bought. The pulp of the beet is put into pits to be kept till next year, and manure is bought to take the place of that which the animals would have supplied. This more frequently happens near large towns, where manure can be got, and where straw can be sold. Cattle.

In the Nord the cattle are all large, full-grown, and productive of much manure and meat. In some other countries they are young, and the ewes occupied in breeding, so that 265,000 head of cattle and 136,000 sheep in the Nord represent much more value than the same number would elsewhere generally in France, and, besides, are renewed, in many cases, three times a year. In the centre the same number of sheep would weigh much less, and would give less rich manure. The Nord breeds little, but fattens much; the poorer countries breed much, but send little direct to the butcher.

A certain number of bulls are also fatted in the Nord, in some districts even more than oxen, and the meat finds a good sale. Bull-beef is rejected for the army, but it is contended by high authorities that bull-beef, when from an animal not too young nor too old,

Cattle. and well fed, is certainly better than that from cows which have been kept as long as it was profitable to keep them as milkers, and which, more than bulls, are liable to be out of health. It is contended even that bull-beef is superior to that of oxen, if the animals are treated in the same way. "A bull of two to three years old put up to fatten assimilates his food better than an ox would do whose vitality has been weakened by castration (*Viseur*)." Public feeling, however, is yet against bull-beef. At Lille and Roubaix bull-beef used to sell better than that from fatted cows, but the mayors of these two towns having ordered that the origin of the meat on sale should be ticketed, bull-beef is shunned, and more money is paid for the meat of worn-out cows than for that from sound and healthy bulls, and the bull-beef is, in the main, sent on to Paris.

Sheep. The sheep, more even than the cattle, are bought, not reared. Being wanted only for fatting, they are bought when full-grown, and of any sort that looks most profitable. They are chiefly the merinos crossed, and the Flemish, but the small Berri sheep is often met with, and to some extent also a kind of Barbary sheep, bred on the plains of Provence. On the fens the Flemish are almost wholly used, the merinos not doing well on marsh land, or near the sea. There is not much attention paid to the improvement of the breed—that is left to those districts that rear the stock; the farmers in the Nord will give more money for a good sheep than for a bad one; but they only

look to profit, and if they can see as much profit in five small sheep as in three large ones, which would cost as much money, they would probably prefer the five small ones. Sheep.

The use of beetroot for sugar-making is of quite recent origin. It is a German invention, the first loaves having been presented to the King of Prussia, in 1799. Beet-Sugar

France, excluded from her colonies during the wars, when sugar was 2s. 6d., and even 5s., per pound, made great endeavours to supply the deficiency of the importation of cane-sugar by the manufacture of a similar article from other substances. Grapes, plums, and carrots were tried, but none equalled beetroot. Small progress was made until 1810, when the first manufactory was established at Lille by M. Crespel Delisse. The first year eight hundredweight was made; in the second, ten tons; but the peace of 1815, reopening traffic with the colonies, stopped the home-trade. Sugar fell two-thirds in price the day peace was signed, and the price gradually sank to 7d. per pound. Most of the factories were closed, but some men of courage fought the battle out, and among them M. Crespel Delisse, who succeeded in establishing a central factory at Arras, to which nineteen farms were attached, to supply the roots. This factory eventually turned out 4,000 tons of sugar yearly.

In 1827 the beetroot-sugar made yearly amounted to 1,000 tons; in 1840, to 27,000; in 1852, to 75,000; in 1866, to 247,000; in 1871, to 330,000; and in 1875;

Beet-Sugar.

to 450,000; whereas the home consumption in the same year was only 250,000 tons, leaving a surplus for exportation of 200,000 tons.

In 1875 the number of factories at work were thus distributed: 161 in the Nord; 96 in the Pas de Calais; 90 in Aisne; 66 in Somme; 39 in Oise; and 72 in all the other departments—524 in all.

The department of the Nord leads the way in the produce per acre, as well as in the number of the works: it averages sixteen and a half tons; Pas de Calais comes next, with sixteen tons; then Somme, with twelve tons; and Aisne, with eleven and a half tons. Any increase in the manufacture will probably take place where the land is less highly rented than it is in Flanders, and the new manufactories can adopt all those improvements which experience suggests, and for which there are such crowds of patents, that it is difficult to distinguish what processes are patented and what are not. An indication of this is given in the number of works in the unenumerated departments of France, which amount now to 72, against 56 in 1873; whereas the works in the Nord have fallen to 161, from 170 in 1873; Pas de Calais, Aisne, Somme, and Oise remaining about the same. In these four departments the rent of land is below that in the Nord. A new factory has lately been constructed in Burgundy, capable of converting 35,000 tons of roots.

The season for manufacturing sugar only lasts six to seven months; indeed, the bulk of the work in France must be done in four or five, as the warm weather, which

occurs in France at the opening and ending of the season, causes the roots to sprout, by which they lose much of their saccharine. Some works can cut up 250 tons per day, and as the cost of delivering the roots at the factory, and drawing back the pulp to the farms, would be very heavy, houses are established at various distances from the factories, where the roots are rasped, the juice extracted and sent through pipes to the factories, so that the roots are delivered near where they are grown, and the pulp remains near where it is wanted. In some cases these pipes extend more than fifteen miles; there is one with this extent of piping near Calais. Where pipes are not established, a light portable railway is used, which enables the delivery to be made over fields and country roads, and is much less costly than pipes, which cannot be laid down under about £400 per mile. Beet-Sugar.

The last two or three seasons (1874-5, 1875-6) have been very unprofitable for both the growers of beet and the sugar manufacturers. These latter complain that the root is yielding less saccharine than it used to do, and as the price of sugar has been very low, they make all sorts of difficulties about taking delivery of the roots contracted for; where a grower has no contract he has found it difficult to sell his beet even at so low a price as from 4s. to 5s. per ton. Some writers go so far as to say that the power of growing beet is passing away, and that the trade is doomed; this opinion, however, had up to 1875 received no general support, either in theory or practice, particularly in the latter, the produce of 1875-76 being on a larger scale than

Beet-Sugar.

ever, and reaching to double the home consumption. The growth is, however, influenced by this state of affairs, the land under beet for the season of 1876-77 being a third less than the year previous, or, as some state, 40 per cent. less. The yield is also bad, many growers not getting more than eight tons to the acre, and the result of the season 1876-77 supports the views of the pessimists, the factories at work having been 496, against 524 in 1875, the yield of sugar only 3½ per cent., duty being paid only upon 271,623 tons, a falling off of 206,000 tons from 1875, which was just about the surplus production beyond the home consumption in that year.

The market value has so greatly changed during the season of 1876-77 that confidence may be restored to this most important trade; raw sugars, which made only 22s. per cwt. in January, 1876, were worth 34s. per cwt. in January, 1877; the difference in refined was much smaller, the proportions being 56s., duty paid, in 1876, and 66s. in 1877. The wet season in the spring of 1876 no doubt helped to decrease the land sown, and the wet in the summer certainly reduced the yield of sugar. The spring of 1877 has been wet, and the sowing late, and the full average sowing has not perhaps been made, but the prospects generally of the trade are more hopeful, and the crop for 1877-1878 is estimated (November, 1877) to reach 350,000 tons; but the price has dropped to 25s. per cwt. for raw sugar, and 58s. for refined, duty paid.

The diminished yield was not true of all the beet

farms. The factory of Nassandres, in the department of the Eure, offered four prizes for the largest growth in that department for the crop of 1875-76; the first was gained by a produce of 25 tons to the acre, the second by one of $24\frac{1}{2}$ tons, the third by one of $24\frac{3}{8}$ tons, and the fourth by one of $23\frac{1}{4}$ tons, making an average of $24\frac{1}{4}$ tons per acre; the average for the four prizes for 1875 was only 20 tons. Beet-Sugar.

Subject to such fluctuations, the produce of beetroot-sugar in France, if all the factories are kept at work, is almost double the home consumption. A permanent relief can only be hoped for from a more extended export or a largely-increased home demand. The first is not easy to create, as though France is the only European country that produces an important surplus, Germany, Austria, Russia, and Holland make as much as they want, and the cane will always supply England with raw sugar. The importations of raw sugar from the Continent into England in 1876 amounted to 154,668 tons, of which only 34,871 came from France; all this would be beetroot-sugar. The importations of cane-sugar for the same period were 424,694 tons. During the same period the importation of refined was 139,126 tons, of which 88,492 tons came from France: all the refined comes from the Continent, and it may be taken that it is all from beetroot. If the French sugar-refiners possessed no underhand advantages, the English market would most likely be lost to them, as with the abundant and steady supply of raw cane-sugar, our refiners could at least keep the sugar refined from beetroot

Beet-Sugar. out of the market; but they do get an advantage, variously estimated at from 6 to 10 per cent., from the method of claiming the drawback upon the refined for the duty paid upon the raw sugar. It has been proposed that the sugar should be refined under bond, so that no duty having been paid, no drawback could be claimed; but the objections to this have hitherto prevailed. The English trade, however, rests upon a very unsafe foundation; and if the drawback were fairly assessed, this outlet for the French surplus would probably be closed.

A large increased consumption could be easily created in France, the amount used per head being only fifteen pounds yearly, while in England it amounts to half a hundredweight. As long as the enormous duties are levied, expansion of home demand cannot be expected. The cost of sugar is a serious matter for the French householder, and also for the prosperity of those trades into whose productions sugar enters so largely, as bonbons, preserved fruits, &c. The skill of the French, however, in the manufacture of these is so great that they hold their own against foreign competition in spite of the disadvantages under which they labour. Portugal, Spain, and Italy might seriously compete with France in these preparations; and of these, Italy is the only country that seems to be making any serious attempts to do so.

It is calculated that for a sugar-factory to be worked profitably it must have a supply of roots from 500 acres; and it may be that factories of this size, or larger, will always be most advantageous. Recent improvements,

however, now permit much smaller works to be carried on, and a supply of roots from 100 to 150 acres suffices for the establishment of a small factory. Continued progress in the same direction may allow small factories to be worked on farms as easily as small distilleries are now; and they will save the heavy charge of the carriage of the roots and the pulp, and can be erected in districts where the rent is much below that of the beet-producing countries of the present day. Beet-Sugar.

This year (1876), a strong attempt is being made to establish the growth of sugar-beet in the west of France, where the land is so much cheaper than it is in the north. The refiners of Nantes, who refine colonial sugars, find their trade leaving them, and they have started a company, with a capital of £400,000, to set up manufactories of raw beetroot-sugar through all the west of France.

Beet now furnishes more than a fourth of the world's production of sugar. It is estimated to stand thus:—

	Tons.
France	451,000
Germany	290,000
Austria	205,000
Russia	150,000
Belgium	80,000
Holland, Sweden, &c....	35,000
	1,211,000

Of the above countries, France and Belgium are the only ones that produce a surplus, the home consumption of France being reckoned at from 270,000 to 275,000 tons, that of Belgium at 50,000 tons.

Beet-Sugar.

Other sugars are estimated to be produced as follows:—

	Tons.
From Cane	2,750,000
„ Palm	100,000
„ Maple	50,000
	2,900,000
Beet as above	1,211,000
	4,111,000

In spite of the great and no doubt true outcry as to the unprofitable nature of the manufacture for the last two years, it has increased in all the countries of Europe in the season 1875-76.

At the opening of this season it was estimated that the manufacture in France would reach 475,000 tons. The difference between that and the real outcome of 451,000 is owing to the bad yield in saccharine of the roots: this has caused serious loss to the manufacturers. Those are exceptionally fortunate who have gone through the season without loss; and in many cases the loss has been so serious that it could only be supported by those houses whose prosperity in earlier times has enabled them to put by a fund to meet so disastrous a season.

In the early days of making sugar from beet—that is, after the processes had become perfected—large fortunes were made, and to have been "in sugar" in France, became as notorious as "striking oil" in America. Contracts were made with farmers for a supply of roots for a term of years, which was generally ten or fifteen, and the price was 15s. per ton. As the manufacture

became more understood, more stringent clauses were added to the contract, specifying the sort of seed to be used, the manures to be applied, the number of roots to be grown on the square yard; in many cases the manufacturer supplied the seed or the manure, sometimes both. Beet-Sugar.

This deficiency in the yield of sugar, whether caused by using too stimulating manures, or sowing beet that yields large crops per acre with a small proportion of saccharine, or from a natural decadence in the sugar-producing properties of the same sorts of beet, has caused endless discussions about the terms upon which beet must be grown and sold to the works. The struggle is severe. The beet that yields the most per acre giving the smallest amount of sugar, the interests of the two parties appear to be adverse, but their real interests are the same. If the works cannot be made to pay, they will be abandoned, and the farmers would lose a market for an article which directly, as produce, has paid them handsomely, and which indirectly, as furnishing a cheap and good supply of fatting material for cattle, enables them to get a large quantity of manure, and also gives them a profit on the animals fatted.

The "root of conciliation'" is perhaps not absolutely found, but trials are continually made to discover the seed and the method of growth which will reconcile the interests of growers and manufacturers.

The duty is charged in France upon the amount of sugar produced. It is not, therefore, essential that the

Beet-Sugar.

roots should give the maximum possible of saccharine as it is in Germany, where the duty is charged upon the weight of the roots consumed. The French system is the best for the country, as it results in a larger production both of sugar and pulp to the acre. The average crop of roots in France is sixteen tons to the acre, and the yield of sugar 6 per cent. of the roots consumed; in Germany the average growth of roots is about eight tons, while the sugar yield reaches an average of 10 per cent. of the roots.

The experiments that have been made in France lately with the object of improving the growth of beet, both with reference to the kind of seed to be employed, and the mode of cultivation, have resulted in showing that it is possible to greatly increase the yield of sugar in those kinds which already gave large returns of root per acre, and increase the yield per acre in those whose saccharine produce was the greatest: This question has been an absorbing one in the beet-growing countries of France; and the Agricultural Society of the Pas de Calais, under its eminent president, the late M. Pilat, and its able chemist, M. Pagnoul, has greatly aided in furnishing data which may be relied upon. The large seed-growers, Messrs. Vilmorin, Andrieux and Co., of Paris, and Messrs. Desprez, of La Capelle, have brought the experience and care of two or three generations to bear upon a subject so important to their interests.

As regards the method of sowing, it seems decided that the closer the roots grow together the greater will be the yield of sugar, and it has now become usual in a

contract for the growth of beet to stipulate that the rows of plants shall not exceed sixteen and a half to eighteen inches apart, nor the distance between the roots in the rows ten inches, so that there shall be at the least eight or nine roots to the square yard; that the ploughing should be deep, and done as much as possible in the autumn; that no top-dressing of manure shall be used, but all the manure be ploughed in; that the leaves shall not be removed until the roots are withdrawn, and when they are removed, that they shall be broken off, not cut. Beet-Sugar.

There are half a dozen kinds of seeds which are in something like general use, but the two most approved of in France are the white Silesian and the red-topped—the former, under exceptionally good cultivation, will give twenty tons to the acre of roots, yielding 12 to 14 per cent. of their weight in sugar; and the latter will reach a yield of twenty-five tons to the acre, with a sugar produce of from 10 to 13 per cent. This red-topped beet is in most general use in France; it is very regular in shape, and keeps well. The highest yield of sugar per acre has been obtained from this species—as much as three and a half tons per acre has been verified.

Vilmorin's improved white beet is the one so largely sold in Germany and Russia; it has been obtained by selection from the Silesian, which, after many generations, has now reached the large yield of 15 to 18 per cent. of its weight in sugar. This is no great increase upon the proportion attained to some years ago, but it

Beet-Sugar. has been greatly improved in its yield of roots per acre, and from giving eight to ten tons, it now not uncommonly gives sixteen to eighteen tons. It is to be noted also that the juice of this plant is purer than that from other sorts.

Continual care in selection will bring further improvement, and it is a question even now whether the improved white Vilmorin would not be as profitable to cultivate as the other kinds, though a difference of seven tons to the acre between it and the red-topped is not an easy chasm to bridge over, in a country where the farmers look to the purchase of pulp at 12s. per ton as part of their advantage in growing beet for the sugar-works.

Pulp. It is this abundant supply of feeding-stuff which has caused the extension of the manufacture of sugar to be regarded with such interest by the general public of France. They have seen in it a substitute for the turnips of England; something, indeed, superior to the turnips of England; it means higher cultivation, more cattle, more manure, more corn. The quantity of stock that can be fatted where beet occupies the usual proportion of the arable land of a sugar-beet-growing farm, which is from one-fourth to one-third, is very large; all animals like the pulp of beet and do well on it. It is given at once mixed with chopped straw or chaff, or it is kept in pits, either by itself or mixed, and it keeps any length of time; it is always ready, requires no cooking, nor washing, nor cutting up.

The comparative value of pulp for its fattening pro-

perties is given by Professor Wolff, of the Royal Agricultural Institution at Hohenheim, near Stuttgard, thus: Beet-pulp, 11·2; grains, 11·6; rape-cake, 48·1; linseed-cake, 56·5. Comparing it with rape-cake worth £6 per ton where the experiments were made, pulp should be worth 28s. per ton. Pulp.

The quantity of pure pulp obtained varies, but it is estimated that, weighed from the heap at the time of consumption, it amounts to one-half of the gross weight of the roots—that is, that from a crop of roots of sixteen or twenty tons per acre, there will be a supply of pulp equal to eight or ten tons, equivalent as cattle-food to from three to four tons of hay, which is the yield of a good water-meadow, or a field of first-class lucerne. Seven pounds and a half of pulp are reckoned as being equal to twelve pounds and a half of raw beet; in some cases the yield of pulp amounts to 65 or 70 per cent. of the roots consumed.

The beet is almost always grown by contract, the agreement stipulating that the farmer supplying the roots shall receive from the sugar-works a certain proportion of pulp at a fixed price. The proportion varies according to the wants of the farmer, but hardly ever exceeds half the weight of the roots; the price also varies, ranging fron 8s. to 12s. per ton. Any supply required beyond the stipulated amount is to be paid for at a higher rate, going up as high sometimes as 18s. per ton. The dissatisfaction felt by the manufacturers with the yield of sugar is met by dissatisfaction on the part Contracts.

Contracts. of the farmers with the condition of the pulp, the improved processes of manufacture giving a pulp much more watery than the old process of hydraulic pressure. Resolutions passed at meetings of manufacturers and of growers have resulted in a common understanding that in future the price of the roots shall be determined by the density of the juice as shown by a saccharometer; but the details as to the points at which the growers shall receive a higher price according as the roots show a higher quantity of saccharine, or a lower one as they fall below a certain point, have not yet been agreed upon (May, 1876). The claim of the manufacturer to be allowed to take all the roots of a high standard on paying the increased rate, and to reject all those of a low standard, although the average may be such as would compel the acceptance of the delivery, is strongly objected to by the farmers, as is also the proposition of the manufacturers that the roots should be delivered only as they are called for. If this last claim were admitted, it would make the sugar manufacturers masters of the situation; because, if it did not suit them to make sugar, they might delay calling for deliveries until the roots were so spoiled that they could be legally rejected as not being sound merchandise. On other minor points there are differences, but not such as would be difficult to arrange, if an agreement upon the two mentioned could be come to, and the most important of these two is the one relating to the degrees of density of juice at which increase or decrease of price should commence.

The duty is charged upon sugar in France according to the quality, and the quality is judged by the colour. There are four categories of charges: it is not easy to say what is paid in the total in each, but it would probably be nearly right if the payment all round were taken to be 27s. per hundredweight. If the produce is reckoned on an average to be 16 tons to the acre, from which 20 cwt. of sugar is obtained, the fiscal charge for sugar alone, falling upon an acre of land growing sugar-beet, will amount to £27. It is certainly this; other calculations bring it up to £32, which it would be where the yield per acre is more than 16 tons, or the produce of sugar more than 6 per cent., and both these amounts are frequently exceeded. Duty.

To this heavy charge must also be added that for the spirit distilled from the molasses, of which 10 cwt. are obtained from the 16 tons. Each hundredweight yields 22 pints of spirit, equal to 220 pints, 27½ gallons to the acre, the duty on which, at 5s. 6d. per gallon, gives an additional amount of quite £7 per acre. All things considered, it may be fairly estimated that every acre of sugar-beet in France brings in about £40 to the revenue of the country, which is more than the cost to the manufacturer, and about half the value of the fee-simple of the best land that grows beet. It is quite the full fee-simple of much of this land.

Any calculation can hardly give the exact result of sugar-making from beet, as the produce per acre, the yield of saccharine, and the market price of the sugar,

all fluctuate, but the following is from a competent authority:—

One acre of beet, producing 20 tons at 16s. per ton, gives £16 to the grower; these 20 tons yield 24 cwt. of sugar, the duty on which, at the rate of 27s. per cwt., is £32 8s.; the same 20 tons will also give molasses, from which 33 gallons of spirit are distilled, on which is a charge of 5s. 6d. per gallon, making a further amount of £9 16s.; bringing up the total to £41 9s. 6d. This is quite distinct from the ordinary charges to which all land is subject in France.

The 24 cwt. of sugar, when made, sells (1875-76), without duty, at 24s. 4d. per cwt., giving a gross amount of £29 4s.; the 33 gallons of spirit sell for £8 8s., without duty; and 4 tons of pulp will make £1 12s.; the total produce of the 20 tons of raw beet amounts thus to £39 4s. The cost of the beet is £16; coal, labour, and other expenses, also £16; making a total cost of £32 against a selling value of £39 4s.; leaving an apparent profit of £7 4s. to cover risk of bad debts, interest on capital, wear and tear of machinery, &c. &c. During the last two seasons few, if any, works would come out so well. In this calculation, the yield from sugar and from spirit agrees with the estimate of the general average, but that from pulp appears considerably understated: according to general opinion it should be at least double.

Beetroot is largely used in distillation, directly from the root itself, and indirectly from the molasses of the sugar-manufactories; indeed, two-thirds of the spirit made in France is thus obtained, as the following table of the production of spirit for the season 1872-73 will show:— Spirit.

	Gallons.	
From Wine	6,670,202	
„ Fruits	1,541,562	
„ Grain	1,994,542	
„ Beet	5,778,410	21,001,970
„ Molasses	15,223,560	
„ Other substances ...	1,488,850	
	32,697,126	

and this is remarkably near the average from 1873 to 1877; 21,001,970 gallons owe their origin to beetroot, which suggests certain misgivings as to the origin of the fine old Cognacs imported for English consumption.

The importation of brandies from France amounts to about 5,000,000 gallons yearly, or nearly equal to $\frac{5}{6}$ of the whole of the grape-spirit made in France. This latter would be sufficient for our supply, if we could trust the statement lately made by a French writer, the Marquis de Dampierre, that, "with very small exceptions, nothing in the way of brandy is drunk at home, but the adulterated production of that commerce which makes no pretence to an honourable delivery, and which frankly owns to seeking its profit more in the quantity than the quality of its article," and if we could be sure that other countries were content, as France is stated to

Spirit. be, with the productions of this adulterating commerce. It is pretty certain that the latter supposition is not true, and also that the statement as to France is greatly exaggerated; so that we must make up our minds that an important portion of our "fine Cognacs" owe their origin to beetroot, and that we are assisting largely, both by the purchase of this spirit and by that of French sugar, to extend the cultivation of that beneficent root which is revolutionising French farming.

There are no statistics to show how much land is under beet especially devoted to direct distillation. The quantity can only be estimated indirectly. The quantity of beet-spirit that came under charge in the year ending September 30, 1874, was 7,339,508 gallons, an increase of nearly one-third over the previous year. The ordinary yield of spirit is one gallon for each two hundredweight of roots, ten gallons for a ton, which would give a total produce of 733,950 tons of roots, which, at twenty tons to the acre, would show that nearly 37,000 acres were under beet directly devoted to distillation. At sixteen tons to the acre, the quantity would be nearly 46,000 acres. The largest of these is probably too low an estimate, as beet is grown for distillation in departments where the land is of inferior quality to that in those departments where sugar-factories are established; and on one large well-managed farm with land of secondary quality the yield on an average of six years was only eleven tons to the acre. It may be assumed that at this time quite 70,000 acres are sown with beet which is distilled, and almost wholly by the farmers themselves.

A distillery is now quite an ordinary adjunct to a French farm in high cultivation, and where one-fourth, or even one-third, of the land is under beet every season. There were in 1876, 500 distilleries, mostly on farms, giving occupation to 29,000 farming workmen. On such farms the course is biennial—that is, beet and wheat alternately where the land is very good and in high condition, or beet and wheat, and then beet and barley, where the soil is less good or in less high condition. Sometimes a crop of barley follows one of wheat, the heavy manuring for the beet sufficing for the two following corn-crops. Spirit.

The expense of beet-cultivation is very considerable. On well-managed farms, where a maximum of produce is realised, the land is subjected to five ploughings and ten harrowings. It is rolled four times, horse-hoed twice. The plants are hand-picked twice, in addition to which there may be other hoeings during the summer, according to the season. It is true that all this cultivation affects the land favourably for the succeeding crop, or for the two succeeding crops, and therefore all the cost should not be charged to the beet; but it is a very considerable outlay for one season, and the growers like to see this outlay covered by the produce of the crop for which it is primarily intended. Cultivation.

When so much depends upon the purity of the seed, it may be supposed that great pains are taken to insure the obtaining of the sort required, and the chief dealers grow themselves the seed they sell. Messrs. Vilmorin, Beet-Seed.

Seed. Andrieux & Co. have a large farm where the seed is collected from the most exceptionally fine roots of the various kinds; but perhaps the largest establishment is that of the Messrs. Desprez, of La Capelle, Nord, who farm 2,250 acres, of which 1,650 are devoted to beet. They employ 350 workmen, have usually 250 head of cattle up fatting and 1,000 sheep. They use 3,500 tons of beet-pulp, 400 tons of linseed-cake, and £4,000 worth of artificial manures. They have a laboratory attached to their establishment, and it is probably the most important one in Europe for the purpose to which it is devoted.

German Beet-Farms. It is not intended here to give any extended information as to the growth of beet elsewhere than in France, but a reference to that of Germany will be interesting for comparison. The fiscal necessity of obtaining a large yield of saccharine causes many of the German manufacturers to grow their own roots, and to have large farms attached to their works. In addition to what they grow, they have always to purchase some; and they usually find, always indeed, that the saccharine from bought roots is less than that yielded by those they grow themselves.

Beet-Sugar—German. Mr. Zimmerman, at Salzmunde, cultivates 12,500 acres, which supply two sugar-factories, a distillery, a flour-mill, an oil-mill, &c. &c. Messrs. Strauss, near Oschersleben, farm 17,500 acres, with two sugar-factories, three large distilleries, a flour-mill, &c. In these vast undertakings, which are perfectly well managed, a

head of horned stock is kept for every two acres and a half, and the total farming capital engaged upon each is £16 per acre; if to this sum is added the value of the buildings and plant, the sum invested in each can hardly amount to less than £400,000. The course of cropping is alternate, beetroot with wheat to follow, then beetroot and barley, upon the good soils; potatoes and rye, and potatoes and oats, upon the poorer soils. The course is biennial for beet and potatoes, quadrennial for each kind of corn. Beet in Germany.

At the meeting of the sugar association of Germany (the Zollverein), held at Magdeburg in the spring of 1876, a sum of £5,000 was subscribed to found an experimental farm for the production and examination of the best sorts of beet to be grown, and the best method of farming them, and a yearly sum of £1,000 was voted for its support. The report of the season 1874-75 for the Zollverein shows 333 works in operation, using the produce of 240,000 acres, which yielded an average of eight tons per acre. Ten and a half hundredweight of roots were used to make one hundredweight of sugar; the proportion of roots grown by the makers themselves was 69·2 per cent., of purchased roots 30·8 per cent. The cost of manufacture, including that of the roots, was from 21s. 6d. to 26s. 6d. per hundredweight, and the duty 8s. 6d. per hundredweight. The value of this statement, which is taken from the official report, is much weakened by the omission of any notice of the pulp, which, for anything that appears in the report, may have to be deducted from the cost. If it

Beet in Germany.

should be deducted, it would reduce the cost of the hundredweight of sugar by 2s. to 3s.; but as French sugar sells at 24s. 4d., allowing for the value of the spirit from the molasses, and for that of the pulp, it may be assumed that the cost named, 21s. 6d. to 26s. 6d. per cwt., is really that of the sugar, and that the values of the spirit and the pulp are both allowed for.

APPENDIX.

CENSUS OF 1877.

(*See page* 13.)

THE census of France was taken in 1877 and showed the population to be 36,905,788; the previous census, taken in 1872, showed 36,102,921, an increase in the four years of 802,867; upon this Mons. Leroy-Beaulieu remarks :—

"Our population is still 6,000,000 below that of Germany, only 3,500,000 above that of Great Britain, and not 10,000,000 above that of Italy. Supposing that all these countries increase at the present rate during the remainder of the century, we shall find ourselves in the year 1900 with a population of 41,000,000, Germany will have 52,000,000 or 53,000,000, England will equal us, and Italy will be hardly 5,000,000 or 6,000,000 below us.

"Such a prospect as this would be sufficiently satisfactory to us if the increase in France, 200,000 per annum, as shown by the last census, could be depended upon. We consider that Germany and Italy increase too rapidly for the well-being of the people; but we are bound to say that this is not to be looked for. The increase of 800,000 in the four years does not accrue from an excess of births over deaths; in no one of the four years did this excess reach 200,000, but it may be estimated as between 130,000 and 140,000. Of this increase of 800,000, 250,000 at least, probably 300,000, is due to immigration. A considerable number of people from Alsace and Lorraine have come over to France since 1872. Immediately after our troubles, and before the census of 1872 was taken, a very important number of French people left their country and have since returned. Without these special circumstances the increase would have been only from 500,000 to 550,000 instead of 800,000."

The increase and decrease are observable in the same districts as in the previous census. Well-to-do Normandy loses nearly 19,000; Brittany gains over 71,000; Flanders gains 71,000, and Artois 31,000.

INCREASE OF WEALTH IN FRANCE.

(*See page* 42.)

In 1826 the value of real property upon which succession duty was paid was £53,200,000; in 1872 it was £149,600,000.

Securities represented by stocks and shares were £60,000,000 in 1815; in 1875 they were £1,800,000,000.

AGRICULTURAL WEALTH.

Since this book was sent to press Mons. Leonce de Lavergne has published a fourth edition of his "Economie Rurale de la France," and he thus sums up the comparison of the agricultural wealth of France in 1877 with what it was about twenty-five years ago.

"I estimated then the annual yield of wheat at 24,000,000 quarters, deducting seed; recent reports to the Government estimate it now at 27,500,000 quarters. The increase in the twenty-five years which preceded 1851 had been 7,000,000 quarters. In 1850 I estimated the price to the farmer at £1 17s. 4d. per quarter; I think it may now be put at £2 2s. 8d. In 1850 the gross money yield would reach £44,800,000; in 1876, £58,000,000.

"There has been quite a revolution in the produce of wine. In 1850 a large proportion of our wines were of small value to the growers for want of cheap carriage; since then railways have penetrated almost everywhere, and the price of wine has risen. In 1850 the produce was less than 900,000,000 gallons, and the price only 5d. per gallon, giving a return to the grower of about £20,000,000; it is now over 1,000 millions of gallons, and the price is 10d. per gallon, bringing the return in money up to £40,000,000. The money produce of wine has doubled.

"The same result has not been obtained in meat; the yield is hardly larger, but the value is 50 per cent. more.

"Milk has increased in about the same proportion as wine; butter is also made more largely, especially for export to England.

"Beetroot has progressed with enormous strides.

"Taking agricultural progress upon the whole, the £200,000,000 of twenty-five years ago is now £300,000,000, in spite of the loss of Alsace and Lorraine; but very much of this increase is due to enhanced values, caused in a great degree by improved means of transport. In 1859 there were 5,500 miles of railroad opened in France, in 1876 the number was 13,600; cross-country roads have been largely developed."

AUTHORITIES CONSULTED.

"Statistique de la France," 1862, 1871, 1872.

"Statistique Internationale, 1873."

"Rapport sur l'Enquête Agricole." Par M. de Monny de Mornay, 1868.

"Enquête sur l'Agriculture Française." Par une Réunion de Députés, 1861.

"Bulletin de la Société Centrale d'Agriculture de France."

"Bulletin de la Société des Agriculteurs de France."

"Journal de l'Agriculture." Dirigé par M. Barral, Secrétaire perpetuel de la Société Centrale.

"Journal d'Agriculture Pratique." Dirigé par M. Lecouteux, Secrétaire de la Société des Agriculteurs.

"L'Echo Agricole." Par MM. Laverrière and Victor Borie.

"Gazette des Campagnes." Par M. Hervé.

"Journal des Débats." Par Paul Leroy-Beaulieu.

"L'Agriculture et l'Enquête." Par Leonce de Lavergne.

"Économie rurale de la France." Par Leonce de Lavergne.

Arthur Young's "Travels in France in 1787, 1788, and 1789."

French edition of same, translated by M. Lesage, 1860.

"Géographie de la France." Par E. Reclus.

"Géographie des Départements de la France." Par Joanne.

"La France Agricole." Par G. Heuzé, Membre de la Société Centrale.

"Bulletin du Laboratoire Départementale du Finisterre." Par M. Phillipar.

"Stations Agronomiques." Par Mr. Grandeau.

"Les Consommations de Paris." Par Armand Husson.

"L'Agriculture du Nord de la France." Par J. A. Barral.

"Journal de la Société de l'Ariége sur le Fromage de Roquefort."

"Traité sur la Fabrication des Fromages dans le Jura." Par le Dr. Bousson.

"Annuaire Officiel des Courses à Trot."

"Note sur l'Industrie du Sucre Brut." Par Émile Cartier.
"Note sur la Destruction des Loups." Par M. d'Esterno.
"Catalogue des Arbres Fruitiers de M. Leroy, Angers."
"Le Hanneton et ses Ravages." Par M. Gustave D.
"Études du Cheval." Par Richard (du Cantal).
"Cheval Percheron." Par du Hays.
"Manuel de l'Éleveur de Poulains dans le Perche." Par A. Morin.
"Le Cheval, l'Âne, et le Mulet." Par Lefour.
"Races Bovines de France." Par le Marquis de Dampierre.
"Les Moutons." Par A. Sanson.
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"Les Choux." Par P. Joigneaux.
"Les Insectes Nuisibles." Par Victor Rendu.

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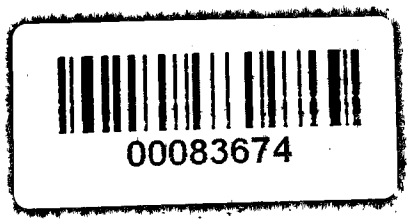
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